

**volume III ♦ issue 4**

2012

Logos &  
Episteme

an international journal  
of epistemology

**Romanian Academy  
Iasi Branch**



**“Gheorghe Zane” Institute  
for Economic and Social  
Research**

INSTITUTUL EUROPEAN

## Editorial board

---

### Director

Teodor Dima

### Editor-in-Chief

Dan Gabriel Simbotin

### Executive Editors

Eugen Huzum  
Cătălina-Daniela Răducu

### Assistant Executive Editor

Vasile Pleșca

### Editors

Daniela Dunca  
Petru Dunca  
Irina Frasin  
Cornelia Margareta Găspărel  
Bogdan Ștefanachi  
Ioan Alexandru Tofan

### Web&Graphics

Codrin Dinu Vasiliu

---

### Contact address:

Institutul de Cercetări  
Economice și Sociale „Gh.Zane”

Iași, str.T.Codrescu, nr.2, cod 700481  
Tel/Fax: 004 0332 408922  
Email: logosandepisteme@yahoo.com

[www.logos-and-episteme.proiectsbc.ro](http://www.logos-and-episteme.proiectsbc.ro)

**Logos** &  
**Episteme**

ISSN 2069-053

## Advisory board

---

Fred Adams

University of Delaware, USA

Daniel Andler

Université Paris-Sorbonne, Paris IV, France

Alexandru Boboc

Academia Română, Romania

Vihren Bouzov

"St. Cyril and St. Methodius" University of Veliko Turnovo, Bulgaria

Panayot Butchvarov

University of Iowa, USA

Mircea Dumitru

Universitatea din București, Romania

Sanford Goldberg

Northwestern University, Evanston, USA

Alvin I. Goldman

Rutgers, The State University of New Jersey, USA

Susan Haack

University of Miami, USA

Stephen Hetherington

The University of New South Wales, Sydney, Australia

Paul Humphreys

University of Virginia, USA

Thierry Martin

Université de Franche-Comté, Besançon, France

Jürgen Mittelstraß

Universität Konstanz, Germany

Christian Möckel

Humboldt-Universität zu Berlin, Germany

Maryvonne Perrot

Université de Bourgogne, Dijon, France

Olga Maria Pombo-Martins

Universidade de Lisboa, Portugal

Nicholas Rescher

University of Pittsburgh, USA

Rahman Shahid

Université Lille 3, France

Alexandru Surdu

Academia Română, Romania

John Symons

University of Texas at El Paso, USA

---

The content of these materials does not necessarily represent the official position of the European Union and the Romanian Government.

For detailed information about the other programs co-financed by the European Union, we invite you to visit [www.fonduri-ue.ro](http://www.fonduri-ue.ro)

This journal was edited within The Knowledge Based Society Project supported by the Sectoral Operational Programme Human Resources Development (SOP HRD), financed from the European Social Fund and by the Romanian Government under the contract number POSDRU ID 56815

# TABLE OF CONTENTS

## Articles

Arnold CUSMARIU, Toward a Semantic Approach in Epistemology.....	531
Barry LAM, Justified Believing is Tracking your Evidential Commitments..	545
Rachel R. McKINNON, What I Learned in the Lunch Room about Assertion and Practical Reasoning.....	565
Luis ROSA, Justification and the Uniqueness Thesis.....	571
Gabriel TÂRZIU, Quantum vs. Classical Logic: The Revisionist Approach..	579
Gal YEHEZKEL, Contingency and Time.....	591

## Debate

Christopher BOBIER, The Conciliatory View and the Charge of Wholesale Skepticism.....	619
Rachael BRIGGS, Daniel NOLAN, Epistemic Dispositions: Reply to Turri and Bronner.....	629
Mark McBRIDE, Saving Sosa's Safety.....	637
Michael J. SHAFFER, Moorean Sentences and the Norm of Assertion.....	653
John TURRI, Preempting Paradox.....	659

## Reviews

Ian EVANS, Nicholas D. SMITH, <i>Knowledge</i> , reviewed by Corina Daba- Buzoianu.....	665
Notes on the Contributors.....	671
<i>Logos &amp; Episteme</i> . Aims and Scope.....	675
Notes to Contributors.....	677



## ARTICLES



# TOWARD A SEMANTIC APPROACH IN EPISTEMOLOGY

Arnold CUSMARIU

**ABSTRACT:** Philosophers have recognized for some time the usefulness of semantic conceptions of truth and belief. That the third member of the knowledge triad, evidence, might also have a useful semantic version seems to have been overlooked. This paper corrects that omission by defining a semantic conception of evidence for science and mathematics and then developing a semantic conception of knowledge for these fields, arguably mankind's most important knowledge repository. The goal is to demonstrate the advantages of having an answer to the more modest question "What is necessary and sufficient for introducing a knowledge predicate into scientific and mathematical languages?" – as contrasted with the ambitious Platonic question "What is knowledge?" After presenting the theory, the paper responds to a wide range of objections stemming from traditional philosophical concerns.

**KEYWORDS:** semantic evidence, scientific knowledge, mathematical knowledge, Gettier problem, skepticism, positivism

Philosophers have recognized for some time the usefulness of semantic conceptions of truth and belief. That the third member of the traditional triad, evidence, might also have a useful semantic version seems to have been overlooked. This paper corrects that omission by defining a semantic conception of evidence for science and mathematics and then developing a semantic conception of knowledge for these fields, arguably mankind's most important knowledge repository. The goal is to demonstrate the advantages of having an answer to the more modest question "What is necessary and sufficient for introducing a knowledge predicate into scientific and mathematical languages?" – as contrasted with the ambitious Platonic question "What is knowledge?" After presenting the theory, the paper responds to a wide range of objections stemming from traditional philosophical concerns.

## 1. Preliminaries

In a letter to the author, Alonzo Church expressed the following view on the importance of semantic conceptions of truth and belief:

There is the notion of belief in a *sentence* relative to a *language*. I am not at the moment inclined to think this is a notion of great importance, but I am prepared to agree that someone might well be able to change my mind on this point by

citing reasons for the importance of this notion. Carnap undertook to use this notion to provide a definition of the different notion of belief in a *proposition*, where this latter notion is understood as language-independent. (I might well know that Columbus believed the world to be round in a way that is completely independent of reference to any particular language.) My criticism of Carnap was to the effect that his attempt to provide such a definition failed in a rather obvious way. Analogously, there is the notion of truth of a *sentence* relative to a language. It is to Tarski's credit that he was able to supply a definition of this notion, and he himself provides quite sufficient reasons for the importance of this notion. I only ask Tarski and others not to confuse this notion with the language-independent notion of truth of a *proposition*.<sup>1</sup>

Surprisingly, philosophers sympathetic to the semantic approaches of Tarski<sup>2</sup> regarding truth and Carnap<sup>3</sup> regarding belief, such as Goodman,<sup>4</sup> Hempel,<sup>5</sup> Quine,<sup>6</sup> Sellars<sup>7</sup> and Davidson,<sup>8</sup> seem not to have considered the possibility of a semantic approach in epistemology. That is, while these philosophers have been sympathetic to replacing the concepts of truth and belief linked to propositions with concepts of truth and belief linked to sentences of a language,<sup>9</sup> there has not been a recognition that the same can be done for the third leg of the knowledge triad, the concept of evidence.

Be that as it may, I will pursue Church's challenge in an epistemic direction and provide "quite sufficient reasons for the importance" of a semantic analysis of the concept of evidence. I will show that such an analysis for science and mathematics has intuitive appeal and is relatively straightforward to formulate, at least in outline, and that the payoffs are significant. Coupled with already available semantic conceptions of truth and belief, a semantic conception of evidence leads to a semantic conception of knowledge that captures what is arguably mankind's most important knowledge repository.

---

<sup>1</sup> Alonzo Church, letter to the author, August 6, 1982.

<sup>2</sup> Alfred Tarski, "The Semantic Conception of Truth" *Philosophy and Phenomenological Research* 4 (1944): 341-376. Reprinted in his *Logic, Semantics, Metamathematics* (Oxford: Oxford University Press, 1956).

<sup>3</sup> Rudolf Carnap, *Meaning and Necessity* (Chicago: University of Chicago Press, 1947).

<sup>4</sup> Nelson Goodman, *Structure of Appearance* (Cambridge: Harvard University Press, 1951).

<sup>5</sup> Carl G. Hempel, *Aspects of Scientific Explanation* (New York: Macmillan, 1965).

<sup>6</sup> W.V.O. Quine, "Epistemology Naturalized," in his *Ontological Relativity and Other Essays* (New York: Columbia University Press, 1969).

<sup>7</sup> Wilfrid Sellars, *Science, Perception and Reality* (London: Routledge & Kegan Paul, 1963).

<sup>8</sup> Donald Davidson, *Subjective, Intersubjective, Objective* (Oxford: Clarendon Press, 2001).

<sup>9</sup> I should add right away that on the present view it is sentence-types, i.e., abstract objects that exemplify epistemic properties and not inscriptions. My semantic conception of evidence is not committed to Nominalism.



## 2. Semantic Epistemology in Mathematics

### 2.1. Evidence-in-Mathematical-Languages

A semantic conception of evidence for mathematical languages entails the introduction of an evidence predicate for all and only (closed) wffs of the mathematical language to which they belong. While there's nothing wrong with introducing such a predicate into mathematical languages one at a time, it is clearly preferable to do so in a way that is necessary and sufficient for all mathematical languages.

The task is considerably less daunting than it sounds because mathematics is a formal system with deduction as the only basing relationship, hence we can count as semantically evident all and only wffs that are axioms or theorems:

(SEM) Where  $z$  is a wff of a mathematical language  $ML$ ,  $z$  is evident-in- $ML$  =Df  
There is a derivation-in- $ML$  of  $z$ .

At the working level, derivations occur in a specific mathematical language such as set theory, plane geometry, algebra, calculus, arithmetic, and so on. The Herculean efforts of Russell and Whitehead have made it possible to speak of a unified language of mathematics, so that in the final analysis we can let  $ML$  be *Principia Mathematica* and achieve the desired level of generality.

### 2.2. Knowledge-in-Mathematical-Languages

According to SEM, a mathematical wff could be semantically evident without being evident for anyone, thus SEM is not sufficient for the formulation of a semantic conception of mathematical knowledge.

(SEM1) Where  $z$  is a wff of a mathematical language  $ML$ ,  $z$  is evident-in- $ML$  for a person  $S$  =Df (i) There is a derivation-in- $ML$  of  $z$ , and (ii) the derivation-in- $ML$  of  $z$  is believed-in- $ML$  by  $S$ .

A small adjustment yields a semantic conception of mathematical knowledge:

(SKM)  $z$  is known-in- $ML$  by  $S$  =Df (i)  $z$  is true-in- $ML$ , (ii)  $z$  is believed-in- $ML$  by  $S$ , (iii)  $z$  is evident-in- $ML$  for  $S$ .

## 3. Semantic Epistemology in Science

### 3.1. Evidence-in-Scientific-Languages

It would be ideal, as well as something of a philosophical coup, if a semantic evidence predicate could be introduced into science along deductivist lines. Familiar objections stand in the way of such a project: Mathematics truths are

Arnold Cusmariu

necessary, a priori, and analytic, those of science are contingent, a posteriori, and synthetic (pace Kant); mathematics is deductive, science is inductive; mathematics means reason, science means experience; mathematics is axiomatic, science is not; and so on.

Thus, Williams:

Today, the demonstrative conception of knowledge is thought to apply at most to knowledge that is strictly *a priori*, the sort of knowledge that, if it exists at all, is exemplified by logic and pure mathematics. No one thinks that the demonstrative ideal can plausibly be invoked in connection with empirical knowledge, which includes all of natural science.<sup>10</sup>

Well and good, but consider the epistemic status of a simple (but paradigmatic) observation sentence in the language of meteorology (ultimately, physics) such as,

(A) Air temperature on Earth at  $(x,y,z,t) = n.m$  degrees Fahrenheit.

A semantic evidence predicate defined for observation sentences of a scientific language should be compatible with the fact that scientific justification derives from the result of an experiment or use of a suitable sensor or measuring device, e.g.,

(B) A working thermometer placed at spatio-temporal location  $(x,y,z,t)$  showed a reading of  $n.m$  degrees Fahrenheit.<sup>11</sup>

Preanalytically, then, (B) is the right sort of scientific epistemic ground for (A). Defining a semantic evidence predicate on the model of SEM, however, requires the availability of a valid derivation of (A) in the language of meteorology, but (B) by itself is clearly not sufficient for that purpose. In this case, a valid derivation requires only the assumption that measuring instruments provide accurate information about the world – an ‘instrumental accuracy law’ – something without which science and engineering would come to a complete standstill:

(C) Whenever a working thermometer placed at a location near the surface of the Earth shows a reading of  $n.m$  degrees Fahrenheit, the temperature at that location is  $n.m$  degrees Fahrenheit.

---

<sup>10</sup> Michael Williams, *Problems of Knowledge* (London: Oxford University Press, 2001).

<sup>11</sup> I am not assuming that to every observation predicate there can correspond one and only one measuring device or method. Thus, “the temperature of  $X$  is 150,000 degree Fahrenheit” might well be semantically evident even though no thermometer could measure such high temperatures, since there are other devices and methods for doing so.

I could multiply this example many times over by replacing thermometers with clocks, telescopes, microscopes, oscilloscopes, angioscopes, spectrographs, manometers, anemometers, barometers, galvanometers, and so on. The reasoning pattern exemplified by all these examples is the same, namely:

- |                             |  |
|-----------------------------|--|
| 1. $(x)(Fx \rightarrow Gx)$ | An instrumental accuracy law                                     |
| 2. $Fa \rightarrow Ga$      | (From 1 by Universal Instantiation)                              |
| 3. $Fa$                     | The antecedent of 2 (an instrumental “initial condition”)        |
| <hr/>                       |  |
| 4. $Ga$                     | The observation sentence (from 2 and 3 by <i>Modus Ponens</i> .) |

More generally, then, for observation sentences such as (A), the basic structure of the deductive-nomological model of explanation yields an analysis of evidence-in-a-scientific-language that is formally similar to the analysis of evidence-in-a-mathematical-language, thereby skirting traditional objections noted above. This time, however, we must proceed one scientific language at a time (chemistry, biology, physics, geology and so on) because as yet there is no unified ‘language of science’ similar to *Principia Mathematica* (or, alternatively, Zermelo-Fraenkel set theory with the Axiom of Choice (ZFC).)

(SES) Where  $z$  is an observation sentence<sup>12</sup> of a scientific language  $SL$ ,  $z$ -is-evident-in- $SL$  =Df There is a derivation-in- $SL$  of  $z$  from true-in- $SL$  instrumental-accuracy-law-sentences-of- $SL$  and instrumental initial-condition-sentences-of- $SL$ .

### 3.2 Knowledge-in-Scientific-Languages

Once again, we must first formulate a semantic concept of evidence-in-a-scientific-language for a person:

(SES1) Where  $z$  is a wff of a scientific language  $SL$ ,  $z$ -is-evident-in- $SL$  for  $S$  =Df (i) There is a derivation-in- $SL$  of  $z$  from true-in- $SL$  instrumental-accuracy-law-sentences-of- $SL$  and initial-condition-sentences-of- $SL$ , (ii) this derivation-in- $SL$  of  $z$  is believed-in- $SL$  by  $S$ .

Finally, here is my semantic conception of scientific knowledge:

---

<sup>12</sup> I am aware that a scientific language will need a semantic predicate that can, at least in principle, apply to the full range of sentence-types that can be considered well-formed relative to the language’s rules of formation, including universally quantified sentences and sentences that contain theoretical terms. I restrict the definition to observation sentences, i.e., those whose non-logical expressions are all observational, because at the moment I am only interested in outlining the foundations of my theory.

(SKS)  $z$  is known-in- $SL$  by  $S$  =Df (i)  $z$  is true-in- $SL$ , (ii)  $z$  is believed-in- $SL$  by  $S$ ,  
(iii)  $z$  is evident-in- $SL$  for  $S$ .

#### 4. Objections and Replies

4.1. *Your version of semantic epistemology is unnecessary because traditional epistemology can easily accomplish the same goal by assigning epistemic properties to sentences or semantic beliefs, leaving existing details unchanged.*

This is not the case. First, I note that a semantic conception of knowledge entails a semantic conception of truth, which Tarski makes quite clear applies only to formalized languages – one semantic concept of truth for a propositional calculus and another for a predicate calculus. Traditional epistemology wishing to go the semantic route would therefore have to be limited to a semantic conception of knowledge for formalized languages, a limitation unacceptable to traditional epistemologists. Second, given that a general semantic analysis of knowledge is not an option for traditional epistemologies, it would serve no purpose for foundationalism, coherentism, reliabilism and so on to develop only semantic conceptions of evidence unique to their respective approaches. Finally, it's unclear that all non-semantic epistemologies would be happy with assigning epistemic properties to sentences or semantic beliefs. Foundationalism, for example, is inextricably tied to propositions or non-semantic beliefs as the bearers of epistemic properties. Reliabilism would have to do a great deal of work to connect reliable cognitive processes to semantic beliefs to define a semantic reliabilist concept of evidence. Other epistemologies would also face daunting tasks – again, to no clear purpose.

4.2. *A semantic conception of knowledge is unnecessary because traditional epistemology already has a conception of knowledge that is adequate for science and mathematics.*

This argument is inconclusive because I too can make it; namely, if semantic epistemology is sufficient to account for scientific and mathematical knowledge, then non-semantic epistemology is not necessary. But this is not the best reply. The best reply is to meet the argument head on and challenge the general adequacy of the traditional conception of knowledge.

An analogy will help make my case. Consider the naïve conception of a set held by Cantor and Frege, which contained a comprehension schema that creates sets all at once by specifying a common attribute. In his famous paradox, Bertrand Russell produced a derivation in the language of naïve set theory proving this axiom was inconsistent. To solve the problem he had discovered, Russell pondered the naïve conception of a set itself and asked whether more than just a single

axiom was at fault. As a result, the iterative conception of a set was developed, with a separation axiom that generates sets not all at once but rather in stages.<sup>13</sup> In true scientific fashion, a concept that seemed perfectly adequate initially had to be rejected because it led to paradox.

The traditional definition of knowledge seems to me to be in a similar bind. My argument for this claim is the Gettier Problem,<sup>14</sup> which I see as a paradox with the same force as Russell's. With a bit of work, Gettier's insight can be converted into a formally adequate argument to prove that the traditional definition of knowledge is inconsistent.

1. P is evident for a person S .....Premise
2. S believes P .....Premise
3. P logically implies  $P \vee Q$ .....By Addition
4. Q is true entirely by luck, accident or coincidence .....Premise
5. P is false .....Premise
6.  $P \vee Q$  is true .....5, 4, definition of " $\vee$ "
7. S recognizes the inference from P to  $P \vee Q$ .....Premise
8. S believes  $P \vee Q$  on the basis of recognizing the inference from P to  $P \vee Q$  .....Premise
9. For any X and Y, if X is evident for a person S, X logically implies Y, S recognizes the inferences from X to Y, and S believes Y on the basis of recognizing this inference, then Y is evident for S .....Premise
10.  $P \vee Q$  is evident for S .....From 1, 3, 7, 8, 9
11. For any X, if X is true, S believes X, and X is evident for S, then S knows X .....Premise
12. *S knows  $P \vee Q$*  .....From 6, 8, 10, 11
13. For any X and Y, if X is true entirely by luck, accident or coincidence and Y is false, then  $X \vee Y$  is true entirely by luck, accident or coincidence .....Premise
14.  $P \vee Q$  is true entirely by luck, accident or coincidence .....From 4, 5, 13
15. For any X and Y, if S believes X and X is true entirely by luck, accident or coincidence, then it is not the case that S knows X .....Premise
16. *It is not the case that S knows  $P \vee Q$* .....From 8, 14, 15
17. S knows  $P \vee Q$  *and* it is not the case that S knows  $P \vee Q$  .....From 12, 16, Q.E.D.

<sup>13</sup> An excellent discussion of these issues is George Boolos, "The Iterative Conception of Set," *Journal of Philosophy* 68, 8 (1971): 215-231.

<sup>14</sup> Edmund L. Gettier, "Is Justified True Belief Knowledge?" *Analysis* 23 (1963): 121-23.

To be sure, this argument by itself does not prove that the traditional definition of knowledge is hopeless, nor that the non-semantic conception of knowledge is in principle indefinable. However, the sheer number, variety, and complexity of solutions for dealing with the Gettier Paradox, many of which are open to increasingly convoluted counterexamples, is suggestive.<sup>15</sup> By comparison, the iterative conception of a set was formalized six years after Russell's famous 1902 letter to Frege announcing the paradox,<sup>16</sup> and the mathematical world moved on, with Frege himself as the lone holdout, still trying to save the naïve conception of a set by imposing restrictions on his comprehension schema, Axiom V.

#### 4.3. *What is your way out of Gettier's Paradox?*

As with any argument that is logically correct, the remaining option is to reject a premise.

First, because SKM and SKS rule out evident falsehoods, my semantic conception of knowledge rejects the joint assertion of steps 1 and 5 of the argument. Second, for me, deduction does not carry epistemic value from one sentence to another as simply as step 9 suggests.

9. For any X and Y, if X is evident for a person S, X logically implies Y, S recognizes the inferences from X to Y, and S believes Y on the basis of recognizing this inference, then Y is evident for S.

Under SES, Y can be a semantically evident observation sentence of a scientific language only if Y is entailed by a sentence X that is a conjunction of two sentences of that language (that need not be semantically evident): an instrumental accuracy law and an initial condition. For example,

(A1) The temperature is 74.6 degrees Fahrenheit

can be semantically evident for S, and yet a sentence it logically implies such as

(A2) The temperature is above freezing

can fail to be semantically evident for S even though S may believe (A2) on the basis of an inference from (A1) and

(A3) If the temperature is 74.6 degrees Fahrenheit, then the temperature is above freezing

---

<sup>15</sup> See Robert K. Shope, *The Analysis of Knowing: A Decade of Research* (Princeton: Princeton University Press, 1983).

<sup>16</sup> The letter is reprinted in Jean van Heijnoort, *From Frege to Gödel* (Cambridge: Harvard University Press, 1967), 124-5.

because (A3) is true by definition and not an instrumental accuracy law. Thus, I reject step 9 of the (reconstructed) Gettier argument.

4.4. *Abandoning a distinction as old as Plato between 'the true' and 'the evident' to solve the Gettier problem seems conveniently ad hoc.*

I am only abandoning half of the distinction. There are two questions at issue: whether 'true' entails 'evident' and whether 'evident' entails 'true.' Along with everyone else, I reject the first entailment – not because intuition so directs it but rather because of modern mathematical and scientific discoveries. Thus, Gödel proved that a (non-axiomatic) sentence-of-ML (e.g., arithmetic) could be a tautology-in-ML even though there is no derivation-in-ML of it – thus the sentence is neither evident-in-ML nor known-in-ML.<sup>17</sup> And quantum mechanics has the phenomenon of incompleteness in the form indeterminacy, though only as a matter of contingent fact. My view is compatible with modern discoveries about the limits of knowledge.

I accept the second entailment for a reason that is independent of my semantic theory of evidence: Occam's Razor. Science and mathematics do not need a semantic evidence predicate that allows for the possibility of sentences being both evident and false because we can make room for this possibility another way, namely, by means of the concept of 'ostensible evidence.' This option is already available for other epistemic concepts (semantic or otherwise) such as memory and even knowledge itself, as well as non-epistemic concepts such as ontological commitment. Moreover, there is non-philosophical precedent for disallowing the possibility of evident falsehoods as well: The concept of evidence in jurisprudence does not allow for it,<sup>18</sup> and if it did, serious harm to judicial practices and reasoning – indeed, to justice itself – would result.

4.5. *What do you propose to put in place of a principle such as step 9? After all, unless a theory allows deduction to carry both truth and epistemic value from one sentence to another, it will be impossible to explain the growth of knowledge.*

Observation sentences that are semantically evident according to SES form a foundation of sorts and might be said to be directly or instrumentally evident in the sense that their epistemic status is based on a sensor or measuring device conveying information about the world. At the same time, semantically evident

---

<sup>17</sup> Pursuing the implication of Gödel's celebrated results for semantic mathematical knowledge is also beyond the scope of this paper.

<sup>18</sup> The language of law is an example of a language that is neither scientific nor mathematical into which the introduction of a semantic predicate of the sort sketched here might realistically be expected. This would entail showing that a legal system could be put on an axiomatic footing and that the required logical machinery could be developed within those confines.

Arnold Cusmariu

observation sentences do indeed logically imply all manner of other sentences and I agree this fact should count toward their epistemic status. The simplest solution is to consider such sentences as ‘inferentially evident.’ Thus,

(A2) The temperature is above freezing

is inferentially evident because it is a deductive consequence from an instrumentally evident sentence such as

(A1) The temperature is 74.6 degrees Fahrenheit,

together with an appropriate definition,

(A3) If the temperature is 74.6 degrees Fahrenheit, then the temperature is above freezing.

This sketch of the ‘inferentially evident’ will have to suffice for now. The precise manner in which my theory explains how old knowledge can generate new knowledge is another issue that will have to wait its turn.

4.6. *Explanation and justification are different concepts, so a theory should not confuse them. Show that your use of the D-N model structure does not do so.*

I agree that using the D-N model of explanation as a theory of justification is a mistake. “Iron bars expand when heated” and “This iron bar was heated” logically imply and explain but do not justify “This iron bar expanded.” According to SES, however, the justification of a sentence about the length  $l_2$  of an iron bar at  $t_2$  consists of deduction from an instrumental accuracy law about length measurements coupled with a sentence about the length  $l_1$  of the iron bar at some earlier time  $t_1$  such that  $l_2 > l_1$ . Laws of nature are not part of the definition of my semantic conception of scientific evidence. The relation between laws of nature and instrumental accuracy laws is another area of further inquiry.

4.7. *Your definitions are too narrow because they rule out knowledge based on testimony. For example, scientists must be allowed to have knowledge in areas of their own field even if (a) they were not present in the lab when a discovery was made and only heard about it from a colleague who was present, or (b) a description of the discovery in a scientific journal does not say anything about the instruments or measurements involved.*

I agree that what Russell called ‘knowledge by description’<sup>19</sup> is genuine and needs to be captured by semantic epistemology. In regard to (a), semantic knowledge should be ‘transmissible’ from expert A, who has it by satisfying SKS,

---

<sup>19</sup> Bertrand Russell, “Knowledge by acquaintance and knowledge by description,” *Proceedings of the Aristotelian Society*, 1910-1911. Reprinted in his *Mysticism and Logic* (Totowa: Barnes & Noble Books, 1951), 152-167.



to expert B, who would have it based on A's 'say-so.' Intuitively, what is needed here is a concept of indirect semantic evidence that entails a true counterfactual of the form "If expert B had been in the lab when the discovery was made, then B would have had semantic knowledge." Case (b) strikes me as an example of what might be called 'provisional' knowledge, spelling out which would also require a counterfactual, but of the form, "If the scientific journal had mentioned instruments or measurements used in making the discovery, then an expert reader would have had semantic knowledge." How to make these intuitions precise within my theory is also an issue that will have to wait its turn.

4.8. *"Derivation" is ambiguous between a proof sketch of the sort that is customary in mathematics – e.g., Euclid's reductio argument showing that the square root of 2 is irrational – and a formal proof of validity listing each step in the inference chain along with the rules used. Which concept is intended in SEM1 and SES1?*

This ambiguity has no practical significance for the belief clause of SES1. Believing-in-SL the derivation of some  $z$  is a simple matter even in the stronger sense of formal proof of validity, because the reasoning involves only the universal instantiation of an instrumental law-sentence-of-SL, followed by detachment of  $z$  from this instantiation and an initial condition sentence of SL by means of modus ponens. The complexity of the premises of this short argument, which can be considerable in some cases, does not measurably increase the formal doxastic burden.

The situation changes dramatically when we turn to mathematics, where even the simplest and most intuitive of proof sketches can take dozens of steps to express as a formal proof of validity. For example, stating Euclid's argument that  $\sqrt{2}$  is irrational as a formal proof of validity in first-order logic with identity took me over 50 lines! The formal doxastic burden may well turn out to be excessive if SEM1 were to require that derivation mean formal proof of validity. There is no reason, however, why I must depart from normal mathematical practice and insist on a stronger requirement.

4.9. *Defining evidence in terms of deduction may be fine for mathematics but it is not sufficient for purposes of empirical science, which requires induction to arrive at laws of nature in general and instrumental ones in particular. Once induction is allowed a role, however, we are back to square one having to face old Humean and other skeptical worries.*

I qualified my title to indicate that my purpose here was only to introduce what is a radically new and different conception of epistemology, and not necessarily spell out all its major implications, which would require book-length treatment. That said, I'm inclined to see what is called inductive inference as the

deduction of probabilities, which would make induction a part of the mathematical theory of probability and thus not a special type of inference after all. The real issue, to my mind, is not the nature or limitations of inductive inference but rather which interpretation of probability is necessary and sufficient for scientific purposes, a problem that cannot be pursued here.

4.10. *What does semantic epistemology have to say about distinctions in philosophy such as a priori/a posteriori, analytic/synthetic, and necessary/contingent?*

Only the first of these is an epistemic distinction. My view is that the difference between the two types of knowledge concerns the types of premises used to deduce a sentence that is semantically evident. A sentence semantically evident a priori is derived from axioms that are known a priori, so I can say that such a sentence owes its epistemic status to sentences already known a priori. Everything in the chain that leads by deduction to a sentence that is semantically evident a posteriori is known a posteriori, so once again I get to say that such a sentence owes its status to sentences known a posteriori. Intuitions behind the a priori/a posteriori distinction remain where they are.

4.11. *Instrumental accuracy laws are few and far between once we move away from the 'hard' sciences such as physics, chemistry, and biology. By comparison, your semantic epistemic predicate would do little work in psychology, anthropology, and sociology, for example.*

The problem goes much deeper than that. I am skeptical that languages of the 'soft' sciences can even be built with the level of rigor required to give meaning to the concept of derivation common to SEM and SES. The exception might be certain parts of experimental psychology or anthropology but those languages already behave very much like the language of physics in the way observation predicates are introduced and should have available instrumental laws, hence SES would indeed apply. The rest ...

4.12. *How does semantic epistemology respond to traditional skeptical arguments?*

Many of these arguments rely on the assumption that a belief can be evident and false, and then use the assumption in various ingenious ways to create an unbridgeable gulf to knowledge. Semantic epistemology does not allow for the possibility that a sentence is both evident and false. As noted earlier, a sentence can be ostensibly evident and false; however, a skeptical argument against the ostensibly evident would not have any force against the possibility of semantic knowledge, empirical or mathematical.

4.13. *The vast majority of people spend their lives thinking and communicating largely in a native vernacular, holding few if any semantic beliefs in scientific or*

*mathematical languages. Have you anything to offer in the way of a theory of evidence-in-L, where L is a natural language?*

To pick up where the previous reply left off, natural languages are in an even worse position than those of 'soft' sciences, where at least a modicum of formal rigor is an attainable goal. For example, 'sentence of English' does not have a status in English equivalent to 'well-formed formula,' nor does it make sense to speak in English of recursive application of rules of inference. The standard concept of consistency, without which derivability could not even gain a foothold, is not clear at all for natural languages, because it's not obvious what it means to prove the consistency of English by showing that there is a sentence of English that is not a theorem of English, where this is not merely a reference to the grammar or syntax of English. Finally, let us recall that the vernacular is semantically closed, which leads immediately to the Liar Paradox.

Solving these problems is a rather tall order. It amounts to a kind of skepticism about the ordinary concept of knowledge that Descartes never considered and may well be the real reason why philosophers have never even considered having a hard look at a semantic conception of evidence that essentially turns its back on familiar intuitions. Perhaps the best we can do is to translate sentences of epistemic interest from a natural language into a scientific or mathematical one and then try to resolve evidentiary issues there via the semantic route I have proposed. This paper is hardly the place, however, to even begin suggesting how such translations might be effected.

Finally, I am aware of widely held, cherished, and in a broad sense valuable beliefs – God exists, life has meaning, we are morally responsible for our actions – that are by no means easily translatable into a scientific or mathematical language. I agree it would be a mistake to regard such beliefs either as falling outside the realm of rationality or as being cognitively defective somehow; I am not a positivist. How such beliefs would fit within the scheme I have proposed is also a matter for another occasion.<sup>20</sup>

---

<sup>20</sup> Paul Moser, Gary Rosenkrantz, and the late Philip Quinn provided helpful comments on earlier versions of this paper.



# JUSTIFIED BELIEVING IS TRACKING YOUR EVIDENTIAL COMMITMENTS

Barry LAM

**ABSTRACT:** In this paper, I give an account of the conditions for rationally changing your beliefs that respects three constraints; 1) that rational believing is a matter of respecting your evidence, 2) that evidence seems to have both objective and subjective features, and (3) that our set of beliefs seem to rationally commit us to certain propositions, regardless of the evidential support we have for these propositions. On the view I outline, rationally believing or giving up a belief is a matter of your inferences tracking your rational commitments, and that these rational commitments account for the evidence you must respect. These rational commitments are subjective in that they are relative to the totality of your beliefs, but also objective in the sense that what counts as a commitment is true for everyone everywhere.

**KEYWORDS:** justification, rationality, rational commitments, rational belief-revision

## **Introduction**

In this paper, I present three problems in the theory of justification: the problem of giving a unified explanation of when we are justified in changing our beliefs, the problem of the objectivity versus subjectivity of evidence, and the problem of giving an account of the normative demands of rational commitments. I outline a unified solution to these three problems according to which justified changes of belief are inferences that are sensitive to all and only pieces of information you are committed to as being evidence for or against *P*. I motivate and state a series of rules that determine when you are committed to a piece of information being evidence for a proposition *P*, and show how the view makes sense of our competing intuitions about the objectivity and subjectivity of evidence.

## **1. Three Questions in the Theory of Justification**

In this first section, I present three questions in the theory of justification that I take to be of interest independent of issues concerning knowledge. In the remainder of the paper, I present a theory that attempts to give a unified answer to all three questions.

### 1.1. Justified Belief-Change

Justification was of concern in epistemology because justified belief was long thought to be a component of knowledge. However, beliefs are not the only kinds of things for which we can have epistemic justification. For instance, you can have justification to give up a belief without thereby having justification to believe its negation. In addition to justification to adopt and abandon beliefs, you can have justification to strengthen as well as weaken them. In general, you can have justified *changes* of mind like formation and revision of beliefs in addition to having justified *states* of mind like belief or disbelief. You can even have justification to change the grounds on which you believe that P without having justification to change the belief that P, and without having any change in the justificatory status of your belief. A theory of justification ought to give a unified explanation of the factors that justify changes of mind generally, which includes formation of beliefs. Here we have the first problem of justification at the heart of this paper. Is there a unified explanation of the factors that give us justification to change our minds?

This question is largely independent of questions about knowledge. If I have sufficient justification to give up a belief that P, and I do so, there is no question about whether the doxastic state of mind that results is knowledge, or a component of knowledge. I do not even end up believing that P, so how can I know it? Nor does knowledge enter into the explanation of my justification to give up my belief. It cannot be that failing to know that P is what gives someone sufficient justification to give up a belief that P. If merely lacking knowledge was sufficient to justify the abandonment of belief, then there could be no cases of justified true belief that are not knowledge, for all such cases would be cases where agents ought to give up their beliefs. Knowledge simply is not part of the explanation for the justification of belief abandonment. But yet, identifying the conditions that sufficiently justify me to give up a belief is still of interest even when it has no straightforward link to knowledge. And there does not seem to be anything particularly special about giving up a belief. Forming a belief is just another case of belief-revision. Thus, a unified explanation of justified belief-revision is still of interest even without understanding justification as a key difference-maker to knowledge, or as something that is explained in terms of knowledge. Justification today is as relevant as it was yesterday, even without a straightforward link to knowledge.

## 1.2. Subjective versus Objective Accounts of Evidence

One way to begin understanding justification is in terms of evidence. You have justification to change your belief in a certain way when the evidence you possess points toward or away from the truth of the proposition you believe. But what is it to ‘point’ toward or away from the truth of a proposition you believe? In the theory of probability, evidence for a proposition P is any proposition Q that raises the probability of P. In other words, the conditional probability of P given Q is greater than the unconditional probability of P, provided that P has some initial positive probability.<sup>1, 2</sup> Non-evidential information regarding P is a proposition Q that does not have this feature. This is the general structure of the probabilistic relationships that make one proposition evidence for another. The philosophical substance comes from what we mean by a *probability*. Probabilities might be things out in the world like objective chances, propensities, or dispositions. Probability might instead be subjective degrees of belief, or credences in the mind of a subject. Granting that there are such things as chances, propensities, and credences, exactly which of these things is *the thing* whose structure determines what is evidence and non-evidence for us? The answer tells us whether evidence for a proposition depends on the thoughts of a reasoning subject, or on objective conditional and unconditional features of the world. In other words, to answer the question about probabilities is to give a view about the subjectivity or objectivity of evidence.

The problem is difficult, for we have intuitions that pull us in opposing ways. Consider two cases offered by Alvin Plantinga pointing toward an objective view of evidence.<sup>3</sup>

In case one, person A is captured and altered by Alpha Centauri scientists to have a conditional degree of belief of the Earth being flat, given that there is a

---

<sup>1</sup> In this paper, I am working with this one particular formal characterization of evidence. But many others that are not defined solely in terms of the relationship between conditional and unconditional probabilities are consistent with what I say in this paper. The only important matter for the purposes of this paper is that the structure of certain probabilities on Q and P is what makes Q evidence for P. See Colin Howson and Peter Urbach, *Scientific Reasoning: The Bayesian Approach* (La Salle: Open Court, 1993), chapter 6.

<sup>2</sup> How we should understand a conditional probability is controversial. Alan Hajek argues in “What conditional probability could not be,” *Synthese* 137 (2003): 273-323, that we should understand it as a basic doxastic state. Bas van Fraassen, in “Belief and the Will,” *Journal of Philosophy* 81, 5 (1984): 235-256, prefers to think of it as the comparative likelihood of A and B to A and not B. I am going to take the concept as basic.

<sup>3</sup> Alvin Plantinga, *Warrant: The Current Debate* (New York: Oxford University Press, 1993).

Barry Lam

picture of a round Earth taken from outer space, to be higher than her unconditional degree of belief that the Earth is flat. According to Plantinga,

it is not the case then that the evidence for the earth's being round really does support 'for [A]' the proposition that it is flat-just as it is not the case that the earth is flat 'for [A]'. If E supports proposition H, then E supports H *simpliciter*, not merely relative to your credence function or mine.<sup>4</sup>

For Plantinga, a picture of a round Earth from outer space is evidence that the Earth is round regardless of the credence function that *anyone* might have.<sup>5</sup>

In case two, Plantinga asks us to consider counter-induction. Person A currently believes that it is as likely as not that John can swim. But A also believes it is very probable that John *can* swim given that he is a member of a group in which 99 out of a hundred members *cannot* swim. A also believes that it is very improbable that John can swim on the assumption that John is a member of a group 99 out of a hundred members of which *can* swim. Clearly A *takes* membership in a group of mostly swimmers to be evidence that a person cannot swim, and A *takes* membership in a group of mostly non-swimmers to be evidence that a person can swim. But, according to Plantinga, regardless of what A 'takes' to be evidence or not, it is clearly a fact that membership in a group of mostly swimmers is evidence *simpliciter* that a person can swim, and membership in a group of mostly non-swimmers is evidence that a person cannot swim. Thus what is evidence for a person is not what she takes to be evidence. What she takes to be evidence is not even 'evidence for her' in any meaningful sense of 'evidence' any more than a proposition is 'true for her' in any meaningful sense of 'true.' At most, these are idioms for A taking something as evidence, and A believing something. But taking something to be evidence, by way of your personal credences, doesn't make it evidence, any more than believing a proposition makes it true, according to Plantinga. Plantinga is pointing here to a very strong intuition that the evidence-for, or support relation is a *subject-independent*, objective one that holds between propositions.<sup>6</sup>

---

<sup>4</sup> Plantinga, *Warrant: The Current Debate*, 131.

<sup>5</sup> Plantinga, *Warrant: The Current Debate*, 131.

<sup>6</sup> Such views are not limited to externalists about justification like Plantinga or Timothy Williamson, *Knowledge and its Limits* (New York: Oxford University Press, 2000). Susan Haack for instance, has a view about evidence like Plantinga's in Susan Haack, *Evidence and Inquiry: Towards Reconstruction in Epistemology* (Oxford: Blackwell, 1993). Also see Michael Titelbaum, "Not Enough There There: Evidence, Reasons, and Language Independence," *Philosophical Perspectives* 24 (2009): 477-528, for an extended discussion relating the issue back to Carnap.



On the other hand, other familiar kinds of cases appear to pull us toward a subject-dependent conception of evidence. Imagine that after long clinical studies of the relationship between cholesterol consumption and heart disease, it is discovered in a lab in Sydney that the development of heart disease has no correlation whatsoever with dietary cholesterol consumption. In viewing evidence-ascriptions akin to truth-ascriptions, the subject-independent view will say that the sentence “cholesterol consumption is not evidence of increased risk in heart disease” is true. Now suppose that you and I are in this Sydney lab, watching a television monitor of the American Dr. Spock asking Freddy about his diet. Upon hearing that Freddy eats nothing but egg-yolks deep fried in clarified butter, Dr. Spock concludes that Freddy is likely to develop heart disease. Dr. Spock does so because his conditional probability that Freddy will get heart disease, conditional on Freddy’s high dietary cholesterol intake, is high. We would conclude that Dr. Spock is engaged in a fully justified piece of reasoning. Assuming that fully justified pieces of reasoning respect evidence, we are led to conclude that cholesterol consumption is evidence (for Dr. Spock) that that Freddy will get heart disease. Thus, evidence is subjective, or subject-dependent. This line of reasoning is difficult to dismiss on the grounds that Dr. Spock is still guilty of being unjustified because there is a sense of ‘unjustified,’ an objective sense, which applies to Dr. Spock. It seems no more unjustified of Dr. Spock to draw his conclusion as it is to say that people are unjustified in forming false beliefs on the grounds that they are false.

Familiar thought-experiments concerning the justification of internal duplicates also pull against subject-independent views.<sup>7</sup> Imagine that you and I are talking about A who inhabits a world in which an evil demon does the following; whenever a certain person is reasoning about a general population and samples that population randomly, the evil demon makes it such that no one but those two randomly sampled members have the feature one is inquiring about. According to the subject-independent view, the sentence spoken in our context, “In that world, random sampling and discovering feature F is not evidence that the general population tends to have feature F” is true. It is also objectively true in that world that random sampling of a population and finding feature F lowers the objective probability that members of that population generally have feature F. So according to the subject-independent view, in that world, “random sampling of a member of a population is not evidence of the features of the general population” is false. Imagine that A, however, is an internal duplicate of B, who in this world truly

---

<sup>7</sup> Earl Connee and Richard Feldman, “Internalism Defended,” in *Epistemology: Internalism and Externalism*, ed. Hilary Kornblith (Oxford: Blackwell, 2001), 231-260.

takes random sampling to be evidence that the general population tends to have feature F. Clearly if B is fully justified in so reasoning, so is A. Indeed, in that world, A is fully justified in reasoning the way she does. And since justified reasoning must be fully evidence-respecting, both A and B seemed to have respected their evidence. Thus, evidence is subject-dependent.

In both of the above cases, the objective matters of fact that raise and lower objective chances are not the things that Dr. Spock and A's reasoning reflects. Rather, they reflect Dr. Spock and A's subjective opinions about what is evidence for what, and yet both are fully justified.

In giving an account of evidence, we are pulled in two competing directions. Plantinga is certainly right in that people can disrespect their evidence even when they don't take certain things to be evidence, due to cognitive malfunction, indoctrination, or otherwise. Yet familiar cases of justified reasoning which involve reasoning contrary to facts about causation, correlation, or objective chances seem to pull toward subject-dependent views. We are now familiar with the distinction between subjective and objective justification.<sup>8</sup> Perhaps there are just two irreducible senses of 'evidence,' one that is subject-independent, and one that is subject-dependent. If at all possible, it would be preferable to have a univocal analysis of evidence. Is there a unified account of the kind of information a reasoner must respect in virtue of which her reasoning is justified? Is this information objective (or subject-independent) or subjective (or dependent on the noetic structure and doxastic attitudes of the reasoner)? This is the second problem of justification.

### 1.3. Rational Commitments

A prominent feature of philosophical argumentation involves claiming that a proponent of a certain view is rationally committed to some other view. This kind of rational commitment is epistemic in nature, and it is also normative. There is some kind of normative demand made of a subject when they are rationally committed to a certain view which they in fact do not hold, or actively reject. Yet, as prominent a role as rational commitments play in philosophy, there have been few examinations of the topic as such. Perhaps there is a presumption that rational commitments can be subsumed under concepts in the neighborhood, like the

---

<sup>8</sup> The distinction is found in, for instance, Jonathan Kvanvig, "Subjective Justification," *Mind* 93, 369 (1984): 71-84, Richard Feldman, "Subjective and Objective Justification in Ethics and Epistemology," *The Monist* 71, 33 (1988): 405-419, and Bruce Russell, "Epistemic and moral duty," in *Knowledge, Truth, and Duty: Essays on Epistemic Justification, Responsibility, and Virtue*, ed. Mathias Steup (New York: Oxford University Press, 2001), 34-48.

concept of having justification to believe a proposition. But justification and rational commitment, while related, are not obviously identical. To be rationally committed to a view is not to have sufficient justification to accept it, or to be required to accept it on pain of irrationality. It does not make sense to say that someone who has inconsistent beliefs is justified in believing a contradiction. But saying that a certain set of beliefs rationally commits someone to a contradiction is quite sensible. If you hold a view which entails that there are infinitely many unicorns, I might claim that you should not believe that there are infinitely many unicorns, while at the same time claiming that you are rationally committed to them. To be rationally committed is not the same as being justified in believing, and not the same as being obliged to believe on pain of irrationality.

When we claim that A is committed to P, we are identifying the proposition that P as something to which A bears some kind of epistemic responsibility in her reasoning. But exactly what must A do to carry out such responsibilities? And to which propositions are we rationally committed? We have a series of open questions regarding rational commitments, and the relationship of this concept to epistemic justification. Giving an explanation of the nature and extension of our rational commitments is the third problem in the theory of justification.

## **2. Justified Belief-Revision and Information-Tracking**

Now that we have raised the three questions about justification of interest in this paper, I will now begin building a theory that gives a unified answer to all three, beginning with the problem of justified belief-change.

What separates justified from unjustified belief-revision? Consider the following case, modeled loosely on cases from the empirical study of human reasoning. Two agents, A and B, are presented with testimonial evidence as to whether Jones was drunk on a given night, where one piece of testimony contains information suggesting that she was, and another piece of testimony contains information suggesting that she wasn't. One piece of testimony states that Jones managed to recite Keats and agilely dodge a dart thrown at her on the night in question. The other piece states that she stumbled and knocked a table and its contents over. For A, the vividness and colorfulness of the testimonial details, even when such details are not relevant to the question as to whether Jones was drunk, make a difference to what she concludes about Jones. For instance, when A is given the testimony exactly as I have worded it above, A concludes, given all of the other information, a certain degree of confidence in Jones being drunk. When presented with the same information about Jones stumbling over, but one adds the

detail that Jones stumbled over a *quarter-sawn white oak* table and knocked a *glass bowl of neon green guacamole* onto *curly-shag carpeting*, A concludes to a greater degree of confidence that Jones was drunk. Similarly, if only the other piece of testimony is made vivid and colorful, for instance, that Jones recited a Keats poem *while 14 blondes and three Dobermans* looked on, and dodged a *gold-plated 19th-century African dart* thrown at her, A concludes to a lower degree of confidence that Jones was drunk.

In contrast, B's inferences from the testimony is invariant across the vividness and colorfulness of such details.<sup>9</sup> A is reasoning in an imperfectly rational manner.<sup>10</sup> Comparatively, B's reasoning seems much more rational than A. A's reasoning about Jones is sensitive to irrelevant information in a way that B's reasoning is not. Yet its presence makes a difference to what A concludes about that very matter. Thus, sensitivity of a piece of reasoning to irrelevant information makes that piece of reasoning less than fully rational.

Reasoning can also be imperfectly rational when it fails to be fully sensitive to relevant information. Suppose A and B are told that Smith and Wesson are two people drawn from the population of Wasilla College students. A and B both observe Smith and Wesson drink heavily and break their beer bottles onto the ground in glee, leaving shards of glass on the sidewalk. Suppose that A and B are asked to give their opinion about the degree to which they believe the population of Wasilla College as a whole generally drink heavily and behave irresponsibly. In Case 1, A and B are told that Smith and Wesson were chosen at random from the population. In Case 2, A and B are told that Smith and Wesson were chosen precisely for their partying ways. A's opinion about the character of the population of Wasilla College students as a whole is invariant between Case 1 and Case 2, whereas B believes the same as in A in Case 1, but to a far less degree that the whole population of Wasilla College students drink heavily and behave irresponsibly in Case 2. A's inference in at least one of these cases seems to be insensitive to relevant information, information about the representativeness of Smith and Wesson of the population they are chosen from. As a result, A's inferences are less reasonable than B's, and thus, imperfectly rational.

---

<sup>9</sup> These examples are exaggerated. For empirical studies suggesting some similar situations in which people appear to place inappropriate or undue weight on vivid and colorful information, see Richard Nisbett and Lee Ross, *Human Inference: Strategies and Shortcomings of Social Judgment* (Englewood Cliffs: Prentice Hall, 1980), chapters 3 and 4.

<sup>10</sup> Throughout the paper, I am treating 'justified' and 'rational' as picking out the same kind of normative epistemic quality. Sometimes, 'rational' as a word seems to work better with qualifiers like 'perfectly' or 'imperfectly,' and in such cases I will use 'rational.' There are other senses of the words in which the two come apart. But I will use them synonymously.

From the cases above, it looks as though sensitivity to all and only relevant information in making up or changing your mind about what is the case is the essential feature that makes for justified belief-change. When you reason in a way that is sensitive to irrelevant information, you are less rational or justified in changing your mind. When you reason in a way that is insensitive to relevant information, you are less rational or justified in changing your mind.

Let us make the account more precise. Let an *inference-type* be a way in which a person reasons, categorized at some appropriate level of generality. In the empirical literature, what goes by the heading 'heuristics and biases' like the patterns I have discussed above are usually a list of inference-types. 'Induction' is a famous type of inference, as are perhaps sub-types of induction like "reasoning from particular facts about people to generalizations about them" or "reasoning from particular facts to generalizations about populations."<sup>11</sup> In the presence of irrelevant information, an inference-type which generates a particular change of belief is sensitive to such information just in case what it generates in the absence of such information, in nearby similar situations, differs from what it generates in actuality. In the presence of non-evidential information, an inference-type is insensitive to that information just in case what it generates, in nearby similar situations, is invariant across the presence and absence of that information. In the presence of certain *relevant* information, an inference-type is insensitive to that information just in case what it generates, in nearby similar situations, is invariant across the presence and absence of that information. In the presence of certain *relevant* information, an inference-type is sensitive to that information just in case what it generates, in nearby similar situations, differs in the absence of that information. This notion of sensitivity is due to Nozick who explains knowledge in terms of a belief being sensitive to truth.<sup>12</sup> I am using it to explain justified belief-changes in terms of relevant information. Like Nozick, I will use 'tracking' as the term for when your inferences are fully sensitive to relevant information.

In the presence of a body of information, a particular inference about whether P will be fully justified only if it is an instance of a type that is fully sensitive to, or fully tracks, all and only the information in that body that is relevant to whether P. This characterization does not identify types of inferences as being justified or unjustified. Our friend A above can employ one and the same inferential-type across two situations, and be perfectly justified in one, but not in

---

<sup>11</sup> Let us set aside for now the famous problem of what counts as an appropriate level of generality. See Earl Connee and Richard Feldman, "The Generality Problem for Reliabilism," *Philosophical Studies* 89, 1 (1998): 1-29.

<sup>12</sup> Robert Nozick, *Philosophical Explanations* (Cambridge: Belknap Press, 1981).

the other, due completely to the fact that irrelevant information is absent in one but present in the other. Similarly, A can employ an inferential-type across two situations, and be unreasonable in one but fully reasonable in the other, due completely to the fact that certain evidential information is present in one but absent in another. It is incorrect to say that 'induction' or 'the availability heuristic' is an unjustified form of reasoning. Rather, certain instances of them can be unjustified, while others can be perfectly justified.

### 3. Commitments as Justifiers

Justified belief-revision must track all and only relevant information. There is a reading of this view that is simply trivial. What is 'relevance' except 'justification-giving'? This makes justified belief-revision a trivial matter of belief-revision that is sensitive to justification-giving factors! The move to 'evidence' talk does not help. Almost by definition, information that is relevant to whether P is evidence for or against P, where this can simply be defined in terms of conditional probabilities as in section 1.2. But we still need a solution to our second problem so as not to collapse into triviality. Is the proper characterization of probability subjective or objective? In other words, does our reasoning need to respect what our subjective probabilities say is relevant, or what is in fact relevant independent of our subjective probabilities? If the answer is our subjective probabilities, then we have something non-trivial; what is relevant is whatever it is a subject takes to be relevant. However, recall that in response to intuitive cases, our intuitions pull two different ways. How can the evidence that rationality demands we respect in our reasoning be, at the same time, independent of our personal conditional probabilities, or what we 'think' is evidence for what, and also dependent on our personal probabilities?

Rational commitments, I submit, are things which have all the right features for being those things which characterize evidence. A rational commitment depends on what you believe. Two people who believe different things may be committed to different things. Commitments are therefore subject-dependent. But a commitment need not itself be something that you believe. You can be committed to Q being evidence for P without thereby also believing that Q is evidence for P. In this way, what you are committed to is not necessarily something that you yourself may believe or have any opinions about. And if your rational commitments make up the extension of the probabilities that determine what information is evidentially relevant to P for you, then it is possible that Q is evidence for P for you even if you do not 'think' it so. At the same time, what is evidence for you still depends on the totality of your beliefs and subjective

probabilities. Rational commitments have subjective and objective features that make them prime candidates for determining what is evidence for you. And while the notion of ‘commitment’ is still a normative one, it is not the same as the notion of justification. Therefore, saying that what counts as relevant and irrelevant information is a matter of your rational commitments is nontrivial. This is the theory I will articulate in this section. In the next section, I will show how it helps to settle the intuitions concerning objective and subjective evidence.

According to what I will call the Commitment-Tracking Theory, given the set of actual conditional and unconditional credences held by a person, let’s call it  $pr_{@}^{(*)}$ , there is a set of possible degrees of belief for a person, call it  $pr_{\odot}^{(*)}$ , whose structure determines what is evidentially relevant for her. That is, whatever A’s personal credences in P ( $pr_{@}(P)$ ) or Q ( $pr_{@}(Q)$ ), P is evidence for Q for A just in case  $pr_{\odot}(P|Q) > pr_{\odot}(P)$  provided  $pr_{\odot}(P) > 0$ . In other words, the structure of the probabilities on P and Q in the set of possible degrees of belief to which an agent is *committed* is what determines the evidential relevance of Q to P. Yet, what is in the set of commitments will depend on the subject’s actual credences together with whatever set of rules generate the set of commitments of A. On this view, two people with difference subjective credences can differ in terms of what is evidence for what for them. However, a subject’s own actual subjective credences, conditional or unconditional, do not exhaust what is evidence for what for her.

### 3.1. Rules of Commitment

What we require is a motivated set of rules that determine a subject’s commitments. A logical consequence of a theory or set of beliefs is considered a commitment of that theory or subject of those beliefs.<sup>13</sup> This logical consequence conception of commitment extends to the probabilistic case as well. A certain weather forecaster may believe that rain is twice as likely as no precipitation, and that given any further drop in barometric pressure before midnight, it would be thrice as likely as no precipitation. Imagine that the following three other degrees of belief are not ones he currently possesses: (1) that a drop in barometric pressure makes rain half as likely as no drop, (2) that it is twice as likely to snow than rain,

---

<sup>13</sup> This is even accepted by the most skeptical of philosophers about any relationship between logic and justified reasoning like Gilbert Harman, “Internal Critique: A Logic is not a Theory of Reasoning and a Theory of Reasoning is not a Logic,” in *Handbook of the Logic of Argument and Inference: The Turn Towards the Practical, Volume 1 in Studies in Logic and Practical Reasoning*, eds. D.M. Gabbay, R.H. Johnson, H.J. Ohlbach, and J. Woods (Amsterdam: Elsevier Science B.V., 2002), 171-186.

Barry Lam

(3) given no precipitation tomorrow, it is likely that there will be no drop in barometric pressure after midnight. Some of these possible degrees of belief, (1), are inconsistent with an agent's actual degrees of belief. Some of them, (2), are consistent with them, and some of them, (3), are ones to which an agent may not possess, but is nonetheless *committed*.

These notions of commitment are closely related to the notion of logical and probabilistic coherence.<sup>14</sup> But our commitments extend beyond formal coherence. Rational commitments appear to be those propositions, probabilities, and conditional judgments that make maximal sense of all your beliefs and judgments. Consider the following non-epistemic case. It is consistent for the park to prohibit skateboarding on the grounds that it causes costly damage to the concrete. Now imagine that stunt bicycling causes similar costly damage to concrete and is just as prevalent. The park is committed to prohibiting stunt bicycling also. Now it is perfectly consistent to prohibit one but not the other. However, when you do things on certain grounds (and only on those grounds), you are committed to coherently applying those grounds to new cases unless there are justifiable exceptions. The same is true in the epistemic case. If you believe that P on certain testimonial grounds, and only on those testimonial grounds, then you are committed to any other proposition Q that rests on those and only those exact same grounds. I call this principle the Rule of Parity.

### Rule of Parity

The Rule of Parity is not limited to commitments to believe certain claims. You are also committed to things being evidence of other things. If Repub thinks that John Kerry's past 'flip-flopping' is evidence of Kerry's untrustworthiness, where what this means is that Repub has the right structure of subjective conditional and unconditional probabilities on these propositions, then he is committed to Mitt Romney's 'flip-flopping' to be evidence of Romney's untrustworthiness. This is a commitment that is overridden only if such an agent has significant enough opinions about how Romney is an exception. Conversely, if for Demo, Kerry's past 'flip-flopping' is irrelevant to Kerry's trustworthiness, then Demo is committed to

---

<sup>14</sup> These are prominently featured in Laurence Bonjour, *The Structure of Empirical Knowledge* (Cambridge: Harvard University Press, 1985), chapters 5 and 6. But the notion is not identical to coherence. As we have already seen, it seems to be quite a robust judgment that people with inconsistent beliefs are committed to contradictions, even though a contradiction in no way makes maximal sense of the things you believe. I will discuss the issue of inconsistency more in section 5.



Romney's 'flip-flopping' as being irrelevant to Romney's trustworthiness, unless such an agent has significant enough opinions about how Kerry is an exception.

Let us apply the Rule of Parity to a case we've already seen. An agent A knows that an urn contains some colored balls, and that she must decide the percentage of balls that are red. She knows that Jones will draw two balls at random without replacement. Jones does so, and both balls are red. A believes that the likelihood that all of the balls are red, given that Jones draws two consecutive red balls at random, is much higher than the likelihood that all of the balls are red, given that Jones draws two consecutive red balls specifically because they are red. A's conditional probability reveal that she takes random sampling to be stronger evidence of the properties of a general population than targeted sampling.

The Rule of Parity states that if randomness or non-randomness counts as evidence for agent A in the case of urns with red balls, then agent A is committed to it being evidence for general propositions about all things and their features, unless A has sufficient opinions about how a certain general proposition must be an exception. Specifically, since taking a sampling of Wasilla College students to indicate some features of the general population is no different from taking a sampling of balls to indicate the features of a general population of balls, the features of the sampling method count as evidence in both cases.

### Rule of Integrity

Suppose a subject has conditional probabilities such that Q is not taken to be evidence for P. At the same time however, such a subject evaluates or is disposed to evaluate anyone positively or negatively according to a norm in which Q is evidence for P. Such evaluations commit the agent to Q being evidence for P. For instance, if you do not have an opinion that skin color is evidence of criminal dispositions, but you evaluate certain people negatively for not thinking some person is likelier to be a criminal on the basis of their skin color, then you are committed to skin color being evidence of criminal disposition. I call this the *Rule of Integrity*, which states that if you evaluate yourself and others according to a set of epistemic standards, then you are committed to the doxastic states that make sense of those standards. Any conditional probability whose presupposition explains an epistemic evaluation an agent makes, or would make given the agent's epistemic standards, is one to which she is committed.

### Rule of Belief

The *Rule of Belief* states that one is committed to any doxastic state that one possesses. This captures the idea that if one already takes something to be evidence

Barry Lam

and something as non-evidence, it counts as something that the subject's inferences ought to respect or ignore. For instance, imagine that A believes that rain is likelier given a drop in barometric pressure than with no drop. Yet upon viewing nothing but a drop in barometric pressure, A actually lowers his opinion about the likelihood of rain. His inference here is imperfectly rational, since it fails to respect what is evidence by his own lights, in a very straightforward way. Notice that the same is true even if A mistakenly believes, because of his incompetent meteorology professor, that rain is likelier given a *rise* in barometric pressure. Seeing nothing but a rise in barometric pressure, A ends up decreasing his confidence in rain. A's line of reasoning would still be imperfectly rational in the same way.

### Rule of (Probabilistic) Coherence

Let me end with a formal characterization of the first rule I discussed in this section, the *Rule of Coherence*. According to this rule, any degree of belief, conditional or otherwise, which is coherence-contributing to an agent's existing degrees of belief is one to which she is committed. A certain possible degree of belief may be one whose adoption would increase the overall coherence of an agent's system of beliefs. In that case, this is a possible degree of belief to which the agent is committed.

There are various technical ways of capturing this idea of coherence. Suppose a person has a certain finite set of credences and opinions. Some of these opinion can be merely comparative and qualitative, as in "I am more confident in P than in Q," "P and Q is much likelier than P and not Q, which is itself likelier than Q," or "P given Q is a lot likelier than P given not Q." If such an agent's credences are consistent, there will be a set of functions satisfying the axioms of probability theory such that each function satisfies every opinion of the agent. Call this set of functions the agent's *Representor*.<sup>15</sup> Here is one analysis of 'coherence-contributing.' A certain probability in a proposition or pair of propositions is coherence-contributing if every function in the Representor contains it. That is, if every probability function consistent with your current degrees of belief has the probability for P being  $n$ , then you are committed to the probability of P being  $n$ . This analysis can be generalized. If a certain structure of probabilities is present in every probability function consistent with your current degrees of belief, then you are committed to having opinions with that structure. For instance, if every probability function consistent with your degrees of belief

---

<sup>15</sup> See Bas van Fraassen, "Fine-grained Opinion, Probability, and the Logic of Belief," *Journal of Philosophical Logic* 24 (1995): 349-377, for formal details about Representors.

make the probability of P given Q higher than the probability of P, then you are committed to having the conditional probability of P given Q higher than the probability of P. In other words, you are committed to Q being evidence for P.

Though this formal analysis is on the right track, it is incomplete. For one, the above account only takes into consideration the coherence-commitments of agents who begin with consistent opinions. This is because a function in your Representor must satisfy the Kolmogorov axioms, which simply *are* the consistency constraints on degrees of belief. Nonetheless, people can have inconsistent degrees of belief and yet still be committed to possible probabilities. For instance, a person might be committed to possible probabilities in virtue of those possible probabilities being coherent with a large enough consistent subclass of her degrees of belief. Why should one inconsistent pair of opinions spoil the party?

Another reason such an account is incomplete is that the other rules already dictate a set of possible degrees of belief to which a person is committed. Your commitments should include those opinions which are coherence-contributing to what you are already committed to. For instance, suppose that A is committed, by the Rule of Parity say, to the opinion that rain is likelier tomorrow than snow, where this opinion is not something A possesses. The Representor for A's actual degrees of belief will differ from the Representor for the set of opinions to which A is committed in virtue of the the other rules of commitments. For example, suppose because of A's other opinions, adding the opinion that rain is likelier tomorrow than snow probabilistically commits A (by coherence) to the opinion that the walk to work tomorrow is likelier to be longer than the walk to work today. The Representor of A's actual degrees of belief will not commit A to the opinion that the walk to work tomorrow is likelier to be longer than the walk to work today, but the Representor of the set of opinions to which A is committed, in virtue of the other rules, will. And the latter seems correct to me as capturing what A is in fact committed to.

To capture these considerations, let me give a revised version of the Rule of Coherence: an agent A is committed to all possible probabilities (and structures of probabilities) which are coherence-contributing for her. Being coherence-contributing will be a matter of being a value of every function in the Representor of A's actual degrees of belief, or a large enough consistent subclass of those degrees of belief, and a value of every function in the Representor of A's commitments, or a large enough consistent subclass of those commitments.<sup>16</sup>

---

<sup>16</sup> What counts as 'large enough' I will leave vague and undefined here, with the hope that either something more precise is possible, or that the vagaries do not undermine the view.

Barry Lam

I do not pretend that these are exhaustive rules of rational epistemic commitments, but they are a start. From the agent's own opinions  $pr_{@}^{(*)}$ , the rules of commitment generate a class of probabilities,  $pr_{\odot}^{(*)}$ . The first thesis of the Commitment-Tracking theory is that Q is evidentially relevant for P for a subject just in case  $pr_{\odot}^{(*)}$  makes Q evidentially relevant for P. The rules of commitment show how Q gets to be evidence for P in virtue of a subject's opinions, without getting to be evidence P solely because a subject believes it to be so. The Commitment-Tracking Theory then states that a subject in the process of reasoning about whether P must track all and only relevant information about P, where what is relevant is given by the structure of the probabilities to which she is committed.

#### 4. The Objective Subjectivity of Justified Belief-Change

Now that I have fully given the Commitment-Tracking Theory of justified belief changes, we are in a position to see the way in which evidence can be subject-dependent. Differences in  $pr_{@}^{(*)}$  will oftentimes generate differences in  $pr_{\odot}^{(*)}$ . This is what happens in the Dr. Spock and Evil-Demon cases above. Dr. Spock's ignorance of the relevant causal facts means that he is only committed to dietary cholesterol being evidence of heart disease. On the other hand, knowledge of such causal facts renders such facts evidence for the scientists in Sydney. The same holds for subjects in Evil-Demon worlds.

We also see the sense in which what is evidence can be objective, or subject-independent. What is evidence for what for an agent *can* come apart from what a subject merely takes to be evidence. In this sense, evidence can be 'independent' of a subject's credences or noetic structure. Your evidence can differ from what you merely believe to be evidence, but this does not threaten the claim that Q is evidence for P *in virtue* of your beliefs and conditional probabilities. As a result, the Commitment-tracking theory has the tools to make sense of Plantinga's cases. The mere fact that a person takes something to be evidence or non-evidence, and reasons accordingly, does not ipso facto make such reasoning fully justified. There are many pieces of evidence a person's reasoning must respect outside of what that person believes to be evidence. But it does not follow from this fact that the kind of evidence a person's reasoning must respect in order to be justified is completely subject-independent, as Plantinga states.

Let us look back at Plantinga's cases of the flat-earthier and counter-inductivist. We seem to have a judgment that there is a kind of unreasonableness

exhibited by people whose noetic structure makes it out so that a picture of a round Earth is evidence for the Earth being flat, and who reason accordingly. However, Plantinga's cases are very misleading in that all he states of the cases is that the flat-earther and counter-inductivist have subjective credences of the right probabilistic structure. One way of filling in the rest of the details of the case saves the intuition that they are unreasonable in the way they reason, but not because evidence is completely subject-independent.

When we imagine agents in thought-experiments, we are not imagining them in all detail, so we make certain (justified) assumptions about what they are like. Typically people are generally committed to taking a picture of an *o* that is F as evidence that an *o* is F. They are committed to this, by the Rule of Parity, as long as they take *one* instance of a picture of an *o* being F to be evidence that an *o* is F. Or they are committed to this, by the Rule of Integrity, so long as they in any way deem as unreasonable people who do not so reason. By making an assumption that Plantinga's agent is typical, we take them to be committed, according to the various rules, to taking the picture of the Earth being round to be evidence that the Earth is round. When he concludes that the Earth is flat, he is thereby *insensitive* to evidence. Such an agent of course, by the Rule of Belief, is also committed to the picture being evidence that the Earth is flat. But that doesn't defeat our judgment that he is also insensitive to evidence. He simply has inconsistent commitments. Inconsistent commitments about a matter render it impossible for an agent to be fully evidence-respecting in her reasoning about that matter. I will have more on this below in section 5.

On the other hand, we could fill in details for Plantinga's agent to make them committed and only committed to a picture of a round earth being evidence that the Earth is flat, or membership in a set of mostly swimmers being evidence that a person does not swim. But as soon as we fill out all of the details, such a person looks fully justified in changing their minds according to their commitments. For instance, we can build into the case that the flat-earther has sufficient beliefs about why pictures of *the Earth being round* is relevantly different in evidential value to pictures of anything else having any other properties. Suppose he thinks that the Round-Earth Society will fabricate millions of pictures of a round Earth and distribute them in his neighborhood only if the society learns that the Earth is flat. He is wrong, as his source for believing this, unbeknownst to him, is completely unreliable. Now he sees a picture of a round earth. Isn't he now fully reasonable in becoming more confident that the Earth is flat? And isn't it because his reasoning is fully respecting the evidence he has?

Counter-induction is no different. On the assumption that A is a lot like us and other people, we evaluate as rational ordinary people who take membership in a group who are mostly F to be evidence that o is F. We are thus committed by the Rule of Integrity that such membership is evidence of an o's being F. By Parity we are committed to membership in a group of mostly swimmers being evidence that John is a swimmer. Absent any further details about A, our normal assumptions about people very reasonably make us conclude that A is not respecting evidence that John is a swimmer in her reasoning about John.

Yet, as soon as we fill in enough details to make A unlike normal people, and therefore not committed to the claims of ordinary people, our negative judgment of A's reasoning disappears. Consider the (very reasonable) conditional probability that a certain day, the hundredth day in a series of days, is dry, on the condition that 99 of the previous days have rained, is higher than one's conditional probability that the hundredth day is dry. The background beliefs behind such a conditional probability is the idea that given enough consecutive days of rain, the chances of a dry day increases, not decreases. Here is one very simple example that makes perfectly reasonable high conditional probabilities on a certain member of a class failing to have a property P, given that the class is such that 99 out of 100 members have P. For one to get such a reasonable conditional probability, we need a certain story, a story about the kind of class it is (an ordered class of days), a story about the sampled day (the last member in that order), a story behind the ordering (consecutive days) and the kind of property it is (raining). This kind of background ends up making perfectly plausible that being a certain member in a class consisting of mostly F members lowers the likelihood that a certain member is F.

If we fill out these kinds of details in the case of A's reasoning about John by giving A similar kinds of background beliefs about John, swimming, and the class of swimmers we are interested in, then even if these background beliefs are all false, it seems that A's inferences about John are fully tracking relevant information, and therefore fully justified. On the other hand, we can construct a case in which we take someone to be changing her beliefs unjustifiably, yet she reasons in a way that appears to be consistent with her conditional probabilities. The Commitment-tracking view will imply that there will always be some hidden presuppositions about an agent's commitments that make sense of why she is unjustified, and such commitments trace back to her other beliefs and normative judgments. The Commitment-Tracking view states that it is possible for Q to be evidence of P for a subject even if the subject does not believe or judge it so, but in

all such cases, Q will be evidence of P for her *in virtue* of her beliefs and judgments.

## 5. Inconsistency

What if an agent begins with inconsistent opinions? The inconsistency manifest in such a way that according to the rules of commitment as I have stated them, the agent becomes committed to a set of degrees of belief that somehow make P both evidence and non-evidence for Q for him. How is he to rationally reason then? Let's imagine an agent, A, who is both hypocritical and ad hoc; A believes one thing is evidence for another, evaluates people in a way inconsistent with such a belief, takes random sampling as evidence of typicality among inanimate objects and their features but not at all as evidence in the case of people and their features. Would such an agent now be committed on my account to something both being and not being evidence? If that is the case, is such a person doomed to imperfect reasoning no matter what he does, since he would necessarily be sensitive to non-evidence for him while being sensitive to evidence for him?

The answer to this question is, yes, you bet! The very reason why you should not have all matters of hypocritical epistemic standards and ad hoc beliefs about evidence is precisely because the facts about normative commitment doom you to reasoning in an imperfectly rational way. This, in my opinion, is the central normative importance of consistency.<sup>17</sup> When you have inconsistent commitments with respect to what is evidence for Q, you cannot reason in a fully evidence-tracking way with respect to that proposition. Any way you change your mind about that proposition will track evidence while also tracking non-evidence, or will be insensitive to non-evidence while failing to be sensitive to evidence. Inconsistent commitments doom you to imperfectly unjustified reasoning.

Almost, but not quite. Aren't we all inconsistent in some way or another? Does that mean no one ever reasons in a fully justified way? Of course not. We might have fully consistent subsets of commitments which make evidence and non-evidence for us in a certain domain perfectly consistent. It would then be possible for us to reason in a perfectly evidence-tracking way in that domain. Secondly, there is clearly a sense in which some people with inconsistent commitments can be more reasonable in their reasoning than others who have inconsistent commitments. A person can be *more* committed to P's being evidence

---

<sup>17</sup> In my dissertation, *The Dynamic Foundations of Epistemic Rationality* (PhD. Diss., Princeton University, 2007), I argue against the idea that the normative importance of inconsistency is that it is a necessary condition of static rationality, or rational belief-states. Also see David Christensen, *Putting Logic in its Place* (Oxford: Oxford University Press, 2005).

Barry Lam

for Q than not, even though she is committed to both. In that case her reasoning, when it is sensitive to P, would be more reasonable than it would be if it were insensitive to P. So a person can be more or less reasonable in their reasoning even if they are imperfectly so, depending on how much more she is committed to one side of an inconsistency than the other.<sup>18</sup>

Suffice it to say, the fact that people can have inconsistent commitments is, I think, a virtue and not a problem for my view. People with all manners of ad hoc and hypocritical epistemic standards and beliefs about evidence cannot but fail to change their minds justifiably. The fact that people who have inconsistent commitments can still reason justifiably in certain domains does not threaten the view, and the fact that people with inconsistent commitments can reason more or less justifiably also does not threaten the view.

## 6. Conclusion

I began by raising three questions about justification that are of interest independent of issues concerning knowledge. I then offered a theory that justified belief-change is a matter of tracking relevant information and failing to track irrelevant information in the way you reason about what is the case. What makes some piece of information evidentially relevant or irrelevant for a subject is the structure of the class of opinions to which she is rationally committed. A subject's rational commitments depend on her knowledge, beliefs, opinions, and epistemic standards, but they are not identical to them. There are rules of commitment that tell us how you can be committed to things you do not believe. This Commitment-Tracking theory of justified belief-change makes sense of our intuitions that we can fault subjects for unjustified reasoning even when such reasoning succeeds according to their own lights. But what is evidence for what still depends on subjective factors.

---

<sup>18</sup> Obviously more needs to be said here about this topic, and how to make precise sense of this view.



# WHAT I LEARNED IN THE LUNCH ROOM ABOUT ASSERTION AND PRACTICAL REASONING

Rachel R. McKINNON

**ABSTRACT:** It is increasingly argued that there is a single unified constitutive norm of both assertion and practical reasoning. The most common suggestion is that knowledge is this norm. If this is correct, then we would expect that a diagnosis of problematic assertions should manifest as problematic reasons for acting. Jennifer Lackey has recently argued that assertions epistemically grounded in isolated second-hand knowledge (ISHK) are unwarranted. I argue that decisions epistemically grounded in premises based on ISHK also seem inappropriate. I finish by suggesting that this finding has important implications for the debates regarding the norms of assertion and practical reasoning.

**KEYWORDS:** assertion, practical reasoning, testimony, norms, isolated second-hand knowledge, knowledge norm

## 1. Introduction

A common feature of efforts to articulate norms of assertion has been a search for the appropriate epistemic standard for warranted assertibility. Some have called this the *quantity view* of assertoric norms: the name derives from the idea that an assertion is warranted when it is grounded in a sufficient quantity or degree of epistemic support.

A recent argument put forward by Jennifer Lackey,<sup>1</sup> and further developed by Adam Carter and Emma Gordon,<sup>2</sup> aims to show that certain cases of assertions grounded in isolated second-hand knowledge (ISHK) are not warrantably assertible. ISHK is, in effect, knowledge grounded entirely on someone else's say-so, without the speaker's possessing independent grounds for knowledge. The relevant implications of this argument are, first, that knowledge of what one asserts is not sufficient epistemic support for warranted assertibility; and second,

---

<sup>1</sup> Jennifer Lackey, "Assertion and Isolated Second-Hand Knowledge," in *Assertion: New Philosophical Essays*, eds. Jessica Brown and Herman Cappelen (Oxford: Oxford University Press, 2011), 251-76.

<sup>2</sup> J. Adam Carter and Emma C. Gordon, "Norms of Assertion: The Quantity and Quality of Epistemic Support," *Philosophia* 39, 4 (2011): 615-635.

that the quantity view is false. In this paper I offer support for the view that assertions grounded in ISHK are not warrantably assertible, based on reflections on a reluctance to use instances of ISHK as premises in practical reasoning. This position suggests a unified account of the norms of assertion and practical reasoning – an idea that has received growing support in the literature.<sup>3</sup>

It's important to note that I am not defending, *per se*, Lackey's claim that assertions epistemically grounded in ISHK are unwarrantably assertible. Nor am I defending the view that assertion and practical reasoning are governed by a single constitutive norm. However, if assertion and practical reasoning *are* governed by the same constitutive norm, then we would expect that assertions epistemically grounded in ISHK being inappropriate will be, *mutatis mutandis*, paired with decisions epistemically grounded in ISHK being inappropriate. So if it's the case that decisions epistemically grounded in ISHK are inappropriate, then this is abductive evidence for Lackey's claim that assertions so grounded are also inappropriate. Furthermore, if both assertions and practical reasoning epistemically grounded in ISHK seem inappropriate, then this is evidence for a unified norm of both practical reasoning and assertion.

## 2. Assertion and Isolated Second-Hand Knowledge

There's still a lively debate over plausible candidates for the central (epistemic) norm of assertion. The principal competitors are the knowledge norm (KNA), truth norm (TNA), and some version of a justified belief norm (JNA). Specifically, I'll mention Lackey's<sup>4</sup> reasonable-to-believe norm (RTBNA) and McKinnon's<sup>5</sup> supportive reasons norm (SRNA).

KNA      one may assert p only if one knows that p.<sup>6</sup>

---

<sup>3</sup> Most notably, from John Hawthorne, Jason Stanley, "Knowledge and Action," *Journal of Philosophy* 105, 10 (2008): 571-590, and Jeremy Fantl, Matt McGrath, *Knowledge in an Uncertain World* (Oxford: Oxford University Press, 2009). There's also a close connection with assertibility and licensing inferences in Robert Brandom, "Asserting," *Nous* 17, 4 (1983): 153-71, and *Making it Explicit* (Cambridge: Harvard University Press, 1994). Cf. Jessica Brown, "Fallibilism and the Knowledge Norm for Assertion and Practical Reasoning," in *Assertion: New Philosophical Essays*, 153-74.

<sup>4</sup> Jennifer Lackey, "Norms of Assertion," *Nous* 41, 4 (2007): 594-626.

<sup>5</sup> Rachel McKinnon, "The Supportive Reasons Norm of Assertion," *American Philosophical Quarterly*, forthcoming.

<sup>6</sup> Compare, e.g., Timothy Williamson, *Knowledge and Its Limits* (Oxford: Oxford University Press, 2000), Keith DeRose, "Assertion, Knowledge, and Context," *Philosophical Review* 111 (2002): 167-203, John Hawthorne, *Knowledge and Lotteries* (Oxford: Oxford University Press,

## What I Learned in the Lunch Room about Assertion and Practical Reasoning

- TNA      one may assert p only if p (is true).<sup>7</sup>
- JNA      one may assert p only if one is (epistemically) justified in believing that p.<sup>8</sup>
- RTBNA    i) one may assert that p only if it's reasonable for one to believe that p, and  
          ii) if one asserted that p, one would assert that p at least in part because it's reasonable to believe that p.<sup>9</sup>
- SRNA      i) One may assert that p only if the speaker has supportive reasons for p, and  
          ii) the relevant conventional and pragmatic elements of the context of assertion are present<sup>10</sup>

Each of the canvassed norms, except perhaps SRNA, seems committed to the following sufficiency thesis:

- KNA-S\*    one is properly epistemically positioned to assert that p if one knows that p.<sup>11</sup>

This is easy to see, since if justification is the epistemic standard required to assert properly, then knowledge, being a stronger epistemic state, is sufficient for satisfying JNA/RTBNA. The same applies for TNA and KNA. It would be a problem, then, if there were cases in which a speaker asserts something she knows and yet fails to warrantably assert, where the failure is due to an epistemic deficiency. Lackey<sup>12</sup> argues for a number of such cases: assertions based on isolated second-hand knowledge (ISHK).

An agent has ISHK when she gains knowledge of a proposition based (almost) entirely on the reliable testimony of another agent. The knowledge is

---

2004), and Jason Stanley, "Knowledge and Certainty," *Philosophical Issues* 18 (2008): 33-55, among others.

<sup>7</sup> Matthew Weiner, "Must We Know What We Say?" *Philosophical Review* 114, 2 (2005): 227-251.

<sup>8</sup> Compare, e.g., Igor Douven, "Assertion, Knowledge, and Rational Credibility," *Philosophical Review* 115, 4 (2006): 449-85 and Jonathan Kvanvig, "Assertion, Knowledge, and Lotteries," in *Williamson on Knowledge*, eds. Patrick Greenough and Duncan Pritchard (Oxford: Oxford University Press, 2009), 140-160.

<sup>9</sup> Lackey, "Norms of Assertion." Compare Rachel Rhys McKinnon, "How Do You Know That 'How Do You Know' Challenges a Speaker's Knowledge?" *Pacific Philosophical Quarterly* 93, 1 (2012): 65-83.

<sup>10</sup> McKinnon, "The Supportive Reasons."

<sup>11</sup> Lackey, "Assertion and Isolated," 252.

<sup>12</sup> Lackey, "Assertion and Isolated."

isolated because she lacks independent reasons for justifying her belief (or assertion), and the knowledge is second-hand because it derives its justification from testimony. Lackey argues that cases of ISHK are not necessarily unwarrantedly assertible *per se*, but become so particularly “when a subject’s assertion that *p* is grounded in such knowledge in contexts where the hearer reasonably has the right to expect the asserter to possess more than merely isolated second-hand knowledge....”<sup>13</sup>

One of her central cases is of a student, Jamie, coming into a professor’s office who accuses another student, Sam, of cheating. This charge is based solely on Jamie’s having heard, from her trustworthy and reliable friend Colin, that Sam has cheated. Lackey argues that Jamie’s assertion, “Sam Smith cheated on the midterm exam,” is unwarranted. A professor receiving Jamie’s assertion, Lackey writes, would reasonably expect Jamie to possess some evidence other than the isolated testimony of Colin.<sup>14</sup> So while it’s plausible that Jamie *knows* that Sam cheated based on Colin’s testimony, it’s questionable whether Jamie can warrantably assert as much to the professor. Since Jamie’s assertion has the epistemic status of knowledge but seems unassertible, this is taken as evidence against KNA-S\* and the quantity view.

### 3. ISHK and Practical Reasoning

Some writers have suggested a connection between the norm of assertion and the norm of practical reasoning. Hawthorne and Stanley,<sup>15</sup> for example, argue that one should only use premises in practical reasoning that one knows. Furthermore, if one should only make decisions based on premises one knows, and if we typically use people’s assertions (*i.e.*, testimony) as reasons for action, this suggests that one should only assert that *p* if one knows that *p* (*i.e.*, KNA). I offer a very simple argument to the conclusion that, insofar as we think it correct to assimilate norms of assertion to norms of practical reasoning, and *vice versa*, we can adduce support for the ISHK objection to KNA-S\* based on observations of our reluctance to use instances of ISHK as premises in practical reasoning.<sup>16</sup>

---

<sup>13</sup> Lackey, “Assertion and Isolated,” 254.

<sup>14</sup> Lackey notes in a footnote that this may be why courts disallow hearsay as testimony. Cf. Lackey, “Assertion and Isolated,” 261 fn6.

<sup>15</sup> Hawthorne, Stanley, *Knowledge and Action*.

<sup>16</sup> One could argue that insofar as the apparent unassertibility of assertions grounded in ISHK is evidence against the quantity view of assertoric norms, then, by parity of reasoning, the reluctance to use ISHK as premises in practical reasoning is evidence against a quantity view of norms of practical reasoning.

## What I Learned in the Lunch Room about Assertion and Practical Reasoning

I was recently in our department's lunch room when I overheard a discussion between colleagues about one colleague, call her Jill, keeping a particular brand of 'leak proof' plastic dish inside a ziplock bag.<sup>17</sup> They were questioning why Jill would keep a 'leak-proof' product protected in another supposedly leak-proof product. This implied that she didn't quite trust the dishware to live up to its claim, something she readily admitted. Jill had recently purchased the product based partly on her observation that many other members of the department owned the same dishware. However, she lacked first-hand evidence of the leak-proof properties of the dishware. That is, while she knew that her colleagues used the same dishware, she hadn't seen evidence of its leak-proof properties in action. Rather, Jill bought the dishware (almost) entirely based on her colleagues' testimony to the effectiveness of the dishes. Now, let's suppose that her colleagues are sufficiently epistemically situated such that their testimony is sufficient to impart knowledge to Jill. Her decision to purchase the dishware was thus made with an instance of ISHK as a premise.

Notice, however, Jill's reluctance to make the decision to pack her lunch to work in the new dishware alone. Her reluctance to trust the dish manifests a reluctance to rely on the ISHK as a premise in her practical reasoning: trust is *earned*, she says. Intuitively, Jill wanted to see for herself, rather than merely to rely on the ISHK for her decision to pack her lunch in only the dish. This is a distinctive feature of what (sometimes) seems unassertible about propositions grounded on ISHK. What seems wrong about Jamie's assertion is that she doesn't have any first-person evidence that Sam cheated: she's relying entirely on hearsay. Moreover, Jill's behaviour seems to represent a fairly robust phenomenon. Although we may form a justified belief, or even gain knowledge, through ISHK, we are reluctant to use instances of ISHK as premises in practical reasoning: we want to be personally acquainted with evidence, even though it's the same sort of evidence providing the epistemic justification for the ISHK. We want to see for ourselves, as we say.

Insofar as evidence from what we're willing to use as premises in practical reasoning can tell us something important about norms of assertion, this provides further support for the unassertibility of propositions when such assertions are epistemically grounded only on ISHK. Furthermore, insofar as assertions and decisions epistemically grounded in ISHK both seem inappropriate, this is evidence for a unified norm of assertion and practical reasoning.

---

<sup>17</sup> I'm using these as generic terms rather than brand-names.



# JUSTIFICATION AND THE UNIQUENESS THESIS

Luis ROSA

**ABSTRACT:** In this paper, I offer two counterexamples to the so-called 'Uniqueness Thesis.' As one of these examples rely on the thesis that it is possible for a justified belief to be based on an inconsistent body of evidence, I also offer reasons for this further thesis. On the assumption that doxastic justification entails propositional justification, the counterexamples seem to work.

**KEYWORDS:** uniqueness thesis, evidential permissiveness, rationality, inconsistency, propositional justification, doxastic justification

## 1. The Uniqueness Thesis

Do you think it is reasonable to claim that one can be rational in believing that  $p$  on the basis of certain evidence, while one could also be rational in believing that  $\sim p$  on the basis of the same evidence? Or, maybe, that one can be rational in believing that  $p$  on the basis of certain evidence, while one could also suspend judgment about  $p$  on the basis of the same evidence? If you think of one of these as real possibilities, then your belief is inconsistent with the so-called 'Uniqueness Thesis':

(U) For any proposition  $p$  and body of evidence  $E$ ,  $E$  makes rational a unique doxastic attitude towards  $p$ .

Arguing against (U) would be providing reasons to believe that there is at least one case in which certain evidence makes more than one doxastic attitude justified towards a certain proposition (I use 'rational' and 'justified' interchangeably here). For the sake of simplicity, rather than using the notion of graded belief, I will assume the tripartite typology of doxastic attitudes here: belief, disbelief and suspension of judgment.

Now, (U) is a thesis about how our rational doxastic attitudes are constrained by evidence: there is at most one doxastic attitude – belief, disbelief or suspending judgment – that one can take towards  $p$  on the basis of evidence  $E$ . Consider some evidence  $E$  and any proposition  $p$ . Now suppose you rationally believe  $p$  on the basis of that evidence. Then, according to (U), it is not possible for anyone to rationally suspend judgment about  $p$  on the basis of  $E$ , as it is not possible for anyone to rationally disbelieve  $p$  on the basis of  $E$ .

There are two theses about the permissiveness of evidence which are in direct conflict with (U). The first one is the Extreme Permissiveness Thesis (this name is also used by Anthony Brueckner and Alex Bundy<sup>1</sup>):

(EP) There are cases in which a certain body of evidence  $E$  makes believing that  $p$  rational, but  $E$  could also make believing that  $\sim p$  rational.

If you assume that believing  $\sim p$  entails disbelieving  $p$ , then (EP) implies that there are possible cases where one's total evidence  $E$  justify believing  $p$ , but  $E$  could also justify disbelieving  $p$ . There is nothing in (EP), though, that says it is possible for one to rationally believe that  $p$  and rationally believe that  $\sim p$  at the same time. That would surely be a step further from (EP).

It is reasonable to think that the (EP) defender allows for specific cases in which evidence has such permissiveness – cases in which  $S$  rationally believes  $p$  but, in a counterfactual situation where things would somehow be different,  $S$  would be equally rational in believing  $\sim p$ .

The other thesis conflicting with (U) is the Moderate Permissiveness Thesis:

(MP) There are cases in which a certain body of evidence  $E$  makes believing that  $p$  rational, but  $E$  could also make suspending judgment about  $p$  rational.

The difference between (EP) and (MP) is that the latter does not imply that there are bodies of evidence which rationalize both the belief that  $p$  and the belief that  $\sim p$ . Nevertheless, the possibility adduced in (MP) is also inconsistent with (U), so that the truth of (MP) is sufficient to deny (U). It is also reasonable to think that the (MP) defender allows for specific cases in which evidence has such permissiveness.

In the next section I will examine some possible instances of (EP) and (MP). I did not find in the literature related to the Uniqueness Thesis any consideration about inconsistent bodies of evidence yet. That possibility is considered in the next section.

## 2. Rationality, inconsistency and permissive cases

Suppose Michelle has the following beliefs about her friend, George:

- (1) George is tired, but willing
- (2) [If George is tired, he will rest or sleep] and [George is not willing, or it is not the case that he will rest or sleep]

---

<sup>1</sup> Anthony Brueckner and Alex Bundy, "On 'Epistemic Permissiveness,'" *Synthese* (2011), DOI: 10.1007/s11229-011-9921-9. Accessed August 25, 2012.



Now, assume  $\{(1), (2)\}$  is Michelle's total evidence, and that both (1) and (2) are rationally believed by her. It may be evident to someone reading this paper that the set  $\{(1), (2)\}$  is an inconsistent set – but let us also assume Michelle does not realize that. I take for granted here that, in some cases, we have inconsistent bodies of evidence not identified as such (that is why sometimes we get surprised when a colleague shows some consequences of our assumptions to us!). If you feel uncomfortable saying that  $\{(1), (2)\}$  is a rational set of beliefs, think about the costs of assuming that there is no rational set of beliefs which is also inconsistent. Your belief may be irrational right now, if there is some undetected inconsistency in your total evidence – and sometimes it takes a lot of logical maneuver to discover an inconsistency. More on that below.

Without realizing any inconsistency in her body of evidence, Michelle reasons as follows:

- (3) George is tired (from 1)
- (4) If George is tired, he will rest or sleep (from 2)
- (5) George will rest or sleep (from 3, 4)

So Michelle believes (5), and I see no reason to claim that her belief in that conclusion is irrational or not justified. Her reasoning is valid, her pre-inferential beliefs are justified and no defeater has come to her mind. Nevertheless, Michelle could have reasoned the following way:

- (3') George is willing (from 1)
- (4') George is not willing, or it is not the case that he will rest or sleep (from 2)
- (5') It is not the case that George will rest or sleep (from 3', 4')

In this counterfactual situation, Michelle's reasoning is also valid, her pre-inferential beliefs are justified and, again, no defeater comes to her mind. If we attribute justification to Michelle's conclusion in the first case, I see no reason to deny it in the last one. Granted, in both cases she could have inferred a contradiction – the conjunction of (5) and (5') –, but what if she does not? Is she irrational in having those beliefs only because she did not make the relevant inference? The conclusion here would be that Michelle rationally believes that George will rest or sleep, but she could also rationally believe that it is not the case that George will rest or sleep – I take that to be an instantiation of (EP).

It may not be clear why Michelle's case is an instantiation of (EP). One may want to call attention to the difference between propositional and doxastic justification, and claim that Michelle's case is about doxastic justification, while (U) is a thesis about propositional justification. I address this kind of concern in

the next section, in which I emphasize that every case of doxastic justification is a case of propositional justification. But first let me deal with the observation that I may have been too hasty in granting that one can be rational in believing something on the basis of inconsistent reasons. One may still think that, in the case present case, Michelle cannot be rational in believing (5), because her reasons are inconsistent.

The case I want to talk about is a very well-known episode: in the beginning of the twentieth century, Sir Bertrand Russell showed that Frege's logical axioms are inconsistent. The axioms of the logic system envisioned by Frege are shown to be inconsistent by entailing the possibility of the set of all sets that are not members of themselves<sup>2</sup> – and that paradoxical consequence was not foreseen by Frege himself. In fact, it took some brilliant deductive ingenuity to infer that paradoxical consequence. Now, does that mean that Russell's doxastic attitudes about Frege's theorems are rational (because he realized that Frege's set of axioms is inconsistent) while Frege's doxastic attitudes about those theorems, previously to the discovery of the paradox, are not (because he did not realize his axioms are inconsistent)?

If you are willing to say “Yes, Frege was really irrational, because one cannot be rational in believing something on the basis of inconsistent beliefs, even if the inconsistency was not detected,” I would say you may be taking rationality to be logical omniscience – which it is not. Now if you grant that, prior to Russell's discovery, Frege's beliefs in the theorems of his logical system were rational, then you are committed to the possibility of rational beliefs formed on the basis of inconsistent bodies of evidence. Of course, after realizing the paradoxical consequence, Frege must ‘do something’ to fix his belief-system. In order to be rational, he must suspend judgment about one (or more than one) of his axioms.

So, it is not clear that one cannot be rational in believing something on the basis of an inconsistent body of evidence not identified as such. Michelle's case seems to be a case of rational belief. The evidential body  $\{(1), (2)\}$  makes rational more than one doxastic attitude towards the proposition (5).

Now let me present a case which is a possible instantiation of (MP). In this example, we also have an actual and a counter-factual situation, but the difference between them is more radical. Suppose Amanda justifiably believes both:

- (i) If I clicked the wrong link, my e-mail has a virus now.
- (ii) My email has no virus now.

---

<sup>2</sup> Is it a member of itself?

While having those justified beliefs, Amanda also entertains the following hypothesis: that she did not click the wrong link. In world  $W1$ , Amanda infers:

(iii) I did not click the wrong link.

She is working perfectly, from a cognitive point of view, in  $W1$  – she reasons in accordance with the *modus tollens* inferential rule, and correctly believes (iii) on the basis of (i) and (ii). As she also lacks any defeater to her newly acquired belief, we would say Amanda’s belief that (iii) is also justified.

In world  $W2$ , though, despite having the same evidence and entertaining the same hypothesis, Amanda does not manage to infer (iii), because she lacks the inferential ability to reason in accordance with *modus tollens*. It is as if she does not have the needed algorithm to generate an *output* of the form  $\sim p$  given the *inputs* of the form  $p \rightarrow q$  and  $\sim q$ . In this world, Amanda does not have the foggiest idea why she should believe the entertained hypothesis expressed by (iii), so that she suspends judgment about that proposition. Besides, nothing indicates to her that she is wrong in suspending judgment about (iii) – as far as she can tell, she has no good reasons to believe such a thing on the basis of (i) and (ii). Amanda is really unfortunate in  $W2$ . But is she irrational in suspending judgment about (iii)? How could we expect her to rationally believe (iii) if she is cognitively constrained in such a way that she cannot reason from (i) and (ii) to (iii)?

In this example, Amanda has exactly the same total evidence in worlds  $W1$  and  $W2$ . Nevertheless, in  $W2$  she rationally suspends judgment about a proposition in which she rationally believes in  $W1$ . Think about labeling Amanda as irrational in  $W2$ . What is the rational attitude she must take towards (iii) then? If you say that in order to be rational she must believe (iii), you are implying that it can be rational for  $S$  to believe  $p$  on the basis of  $E$  when  $S$  sees no reason to believe that  $p$ . I take Amanda’s case to be an (MP) instantiation.

Let us call the instantiations of (EP) or (MP) ‘permissive cases.’<sup>3</sup> Again, it may not be clear that Michelle’s and Amanda’s examples are permissive cases. These are examples about doxastic justification (in which  $S$  *justifiably believes* that  $p$ ), while (U), (EP) and (MP) are taken to be theses about propositional justification (in which  $S$  *has justification* to believe that  $p$ ). I address this observation in the next session.

---

<sup>3</sup> Both Brueckner and Bundy, “On ‘Epistemic Permissiveness,’” and Roger White, “Epistemic permissiveness,” *Philosophical Issues* 15 (2005): 445-459, use ‘permissive cases’ to denote (EP) cases. I will use that expression to denote not only (EP) cases, but also (MP) cases.

### 3. Propositional and doxastic justification

Jonathan Matheson,<sup>4</sup> a uniqueness defender, emphasizes that (U) concerns propositional justification only. He says the kind of justification relevant to (U) “is solely a relation between a body of evidence, a doxastic attitude, and a proposition.”<sup>5</sup> So, how cognitive agents have come to gather their beliefs toward a proposition would not be relevant to the uniqueness debate. This is the very same point made by Roger White<sup>6</sup> when he says he is interested in the rational constraints *evidence alone* puts on belief.

But this kind of observation may fail to take into account the fact that there is a very tight conceptual relation between propositional and doxastic justification. You cannot truly assert, for example, that Frege justifiably believes theorem *T* while you also truly assert that Frege does not have justification to believe *T*. That claim would be inconsistent with the following epistemic principle:

(DJ→PJ) If *S* justifiably believes that *p*, then *S* has justification to believe that *p*

This epistemic principle entails, by modus tollens, that if *S* has no justification to believe that *p*, then it is not the case that *S* justifiably believes that *p*. So in Michelle’s case, if we grant that she justifiably believes that (5), we are committed to the thesis that Michele has justification to believe (5). But as she could justifiably believe (5’) in a counterfactual situation, we would also have to say she has justification to believe (5’). How could you explain her justifiably believing (5) if you are not willing to grant she has justification to believe this proposition?

You could reply: “You are implying Michelle’s evidence is the same in both cases – and this is not true, because in the first case she uses (3) and (4), while these propositions are not used by her in the second one.” But (U) says that, for any body of evidence and any proposition, there is a unique rational attitude one can take towards that proposition on the basis of that evidence. So, we would expect that there is a unique rational attitude one could take towards (5) on the basis of {(1), (2)}, and the example shows this is not the case. We could conceive a third possibility about Michelle’s reasoning – one in which she infers (5) directly from {(1), (2)}. Similarly, we could conceive a fourth possibility – one in which she infers (5’) directly from {(1), (2)}.

---

<sup>4</sup> Jonathan Matheson, “The Case for Rational Uniqueness,” *Logos & Episteme* II, 3 (2011): 359-373.

<sup>5</sup> Matheson, “The Case for Rational Uniqueness,” 360.

<sup>6</sup> White, “Epistemic permissiveness,” 445.

In Amanda's case, if we grant she justifiably believes (iii), then we are committed to the thesis that she has justification to believe (iii) in W1. But in W2 she justifiably suspends judgment about (iii). So, she has justification to suspend judgment about (iii) in this case. Given that Amanda's total evidence is the same in both cases, we have an (MP) case.

You could reply: "But, in the second case, the one in which Amanda fails to make the relevant inference, her total evidence is different – she may believe (i) and (ii), entertain the hypothesis (iii), but in order to rationally suspend judgment about (iii) she needs to believe something like 'I have no good reason to believe (iii),' and that implies Amanda's evidence in W1 is different from Amanda's evidence in W2." Nevertheless, in W2, Amanda does not need to believe something like "I have no good reason to believe (iii)." She only needs to fail to realize she has good reasons to believe (iii). No second-order thought are needed in order for her to suspend judgment about (iii). It is easier to understand Amanda's example by supposing that in both, W1 and W2, the only things she has as evidence are the beliefs (i) and (ii) and the hypothesis (iii).

So far, the argument here is as follows. Let us say that in Michelle's and Amanda's cases we have a permissiveness about doxastic justification:

(Permissiveness about doxastic justification) It is possible for *S* to justifiably form doxastic attitude *D1* towards some proposition *p* on the basis of some evidence *E* while it is also possible for *S* to justifiably form doxastic attitude *D2* towards *p* on the basis of *E*, where *D1* ≠ *D2*.

We have no direct reference to propositional justification here. But one need only to put this thesis together with the principle (DJ→PJ) to obtain:

(Permissiveness about propositional justification) It is possible for *S* to have justification for doxastic attitude *D1* towards some proposition *p* on the basis of some evidence *E* while it is also possible for *S* to have justification for doxastic attitude *D2* towards *p* on the basis of *E*, where *D1* ≠ *D2*.

So, it seems that permissiveness about doxastic justification requires the truth of permissiveness about propositional justification. If the cases presented instantiate permissiveness about doxastic justification, then they also instantiate permissiveness about propositional justification. That would imply that (U) is false.<sup>7</sup>

---

<sup>7</sup> I would like to thank Anthony Brueckner and Rodrigo Borges for valuable comments on earlier drafts of this paper.



# QUANTUM VS. CLASSICAL LOGIC: THE REVISIONIST APPROACH<sup>1</sup>

Gabriel TÂRZIU

ABSTRACT: Quantum logic can be understood in two ways: as a study of the algebraic structures that appear in the context of the Hilbert space formalism of quantum mechanics; or as representing a non-classical logic in conflict with classical logic. My aim in this paper is to analyze the possibility to sustain, at least in principle, a revisionist approach to quantum logic, i.e. a position according to which quantum logic is 'the real logic' which should be adopted instead of classical logic.

KEYWORDS: quantum logic, quantum mechanics, logical constants,  
Hilary Putnam

Quantum logic can be understood in two ways: as a study of the algebraic structures that appear in the context of the Hilbert space formalism of quantum mechanics; or as representing a non-classical logic in conflict with classical logic. Within the second view on quantum logic we can distinguish between a preservationist approach, which accepts that quantum mechanics has a logic of its own, but consider that this does not force us to accept a logical revolution because we can understand this language of state attribution in quantum mechanics as a fragment of a language whose logic is classical.<sup>2</sup> A second approach would be the revisionist one, according to which quantum logic is 'the real logic' which should be adopted instead of classical logic, because the latter contains logical laws that must be rejected in all domains.

My aim in this paper is to analyze the possibility to sustain, at least in principle, a revisionist position. I will not be preoccupied here with all the problems that quantum logic deals with, nor will I try to answer to the objections that were brought against adopting a revisionist approach. These are best dealt with when they are taken into consideration from a crystallized position and they will, therefore, not make the object of this paper.

---

<sup>1</sup> ACKNOWLEDGEMENT: This paper was made within The Knowledge Based Society Project supported by the Sectoral Operational Programme Human Resources Development (SOP HRD), financed from the European Social Fund and by the Romanian Government under the contract number POSDRU 89/1.5/S/56815.

<sup>2</sup> See for example Bas van Fraassen, *Quantum Mechanics: An Empiricist View* (Clarendon Paperbacks, 1991), 128-135.

## The starting point: Quine 1 or Quine 2?

We can distinguish between two types of logical revision:

1. *a weak sense*: we start from an analysis of the meaning of sentences to show that certain classical logic laws do not apply to the sentences of a certain type.<sup>3</sup>
2. *a strong sense*: we start from the empirical data and we argue that we must operate this kind of revision as a response to these data.

Quantum logic is a case of revising logic in a strong sense.

The possibility of revising logic in a strong sense is brought into attention for the first time by Quine. It follows as a consequence of adopting his holistic view on knowledge. According to this view,

The totality of our so-called knowledge or beliefs, from the most casual matters of geography and history to the profoundest laws of atomic physics or even of pure mathematics and logic, is a man-made fabric which impinges on experience only along the edges. Or, to change the figure, total science is like a field of force whose boundary conditions are experience.<sup>4</sup>

When confronted with a recalcitrant experience, the revising of the system is taken into consideration. This revision can take place at different levels in the system, but usually

the more fundamental a law is to our conceptual scheme, the less likely we are to choose it for revision. When some revision of our system of statements is called for, we prefer, other things being equal, a revision which disturb the system least.<sup>5</sup>

Since the revision of logic would cause the biggest disruption of the system, the quantum logician has to offer very powerful reasons for the proposed revision – reasons that would make us prefer this revision instead of other alternatives. For example, in the case of physics, as Reichenbach shows, if we want to maintain a Euclidian geometry, we must be willing to accept all sort of causal anomalies: mysterious forces, instantaneous actions at a distance, infinite reduplication, etc. In this context, instead of having to deal with all these anomalies, a revision of mathematics seems preferable.

Quine offers as an example of a case in which the revision of logic can be taken into consideration, the case of quantum mechanics.

---

<sup>3</sup> The best known case of logical revision in a weak sense is intuitionistic logic.

<sup>4</sup> Willard Van Orman Quine, *From a Logical Point of View: 9 Logico-philosophical Essays* (Cambridge: Harvard University Press, 1961), 42.

<sup>5</sup> W.V. Quine, *Methods of Logic* (Cambridge: Harvard University Press, 1982), 2.



Later, Quine changes his mind about this topic and claims that we cannot have alternative logics to classical logic in the sense of logics that reject any of the logical truths as falsehoods.<sup>6</sup> He claims that denying a logical truth means changing the subject, because, if we do not accept a law of classical logic, then we do not attach to the logical constants that appear in this law the same meaning attached by the classical logician.<sup>7</sup>

But we can still sustain the need of a logical revision making abstraction of these issues, if we use the analogy with the case of Euclidian geometry.

### **Putnam and quantum logic**

In his paper “Is Logic empirical?,” Hilary Putnam<sup>8</sup> asks the following question: in the case of Euclidian geometry, has happened that ‘truths’ which were thought to be necessary to be rejected as falsehoods, why wouldn’t it be also the case that some ‘necessary truths’ of logic be rejected?<sup>9</sup> Since Einstein proposed his General Theory of Relativity, the idea that Euclidian geometry represents the mathematical frame suited for formulating empirical laws that describe some concrete empirical phenomena was put aside. That determined some philosophers to say that if the General Theory of Relativity is correct, then some ‘truths’ thought to be necessary are rejected as false and thereby the whole class of ‘necessary truths’ is considered problematic. An example of such a ‘necessary truth’ would be that of the following Euclidian axiom: “the shortest distance between two points is a straight line.” If we accept the General Theory of Relativity, we also accept that it is possible that the shortest distance between two points is not a straight line, but a geodesic (this happens, for example, in a strong gravitational field, as that of the Sun) and thereby we accept that there are empirical situations in which the Euclidian axiom is false. Pushing things further on this line we can ask: why wouldn’t it be the case that some laws of logic are false? Those who accept a logical interpretation of quantum mechanics will say that there are such laws of classical logic that are false. They consider that the true conceptual revolution produced by the quantum mechanics is the revision of logic.

---

<sup>6</sup> For example in W.V. Quine, *Philosophy of Logic, 2nd Edition* (Cambridge: Harvard University Press, 1986), 80-94.

<sup>7</sup> Alan Berger offers a detailed discussion of Quine’s new position in Berger, “Quine on ‘Alternative Logics’ and Verdict Tables,” *Journal of Philosophy* 77 (1980): 259-277.

<sup>8</sup> Hilary Putnam, “Is Logic Empirical?” in *Boston Studies in the Philosophy of Science*, vol. 5, eds. Robert S. Cohen and Marx W. Wartofsky (Dordrecht: D. Reidel, 1968), 216-241.

<sup>9</sup> Putnam, “Is Logic Empirical,” 216.

According to Putnam,<sup>10</sup> the core of the logical interpretation of quantum mechanics is the following identity:

$$\frac{\text{geometry}}{\text{General Theory of Relativity}} = \frac{\text{logic}}{\text{Quantum Mechanics}}$$

Considered to be the most successful theory in the history of science because of its predictive power, quantum mechanics was even from the beginning a theory in search of an interpretation. When we try to interpret the mathematical formalism of this theory, we face some problems generated by the fact that, as it seems, we can not give an interpretation that does not violate one of the fundamental principles of classical physics, e.g. of causality, of energy conservation, etc. It seems that such an attempt to understand the world described by this theory requires the revision of our understanding of the nature of things (the objective nature of reality, its dependence on our perception, the nature of a complex system and its relation to its parts, etc.<sup>11</sup>), or even, according to some, the change of logic.

### Quantum mechanics and its interpretation

The standard interpretation of quantum theory is the Copenhagen interpretation which has Niels Bohr, Werner Heisenberg, Max Born, etc., among its founders. This interpretation is based on the principle of uncertainty, the particle-wave duality, the probability interpretation of the wave function given by Born, the interpretation of the eigenvalues as measured values of the observables, and the principle of correspondence.

*The uncertainty principle:* the measurable physical properties of a quantum system are incompatible with each other, i.e. measuring one will affect the other. Therefore, no quantum state can generate simultaneous high probabilities concerning two observables, e.g. position and momentum. From Heisenberg's perspective, this type of inverse relationship shows that the mathematical representatives for observable quantities, the Hermitian operators, are non-commutative. The main idea here is that any measuring of a property of a system affects, inevitably, the system.

According to Heisenberg, in its first interpretation of the principle, the essential element of the quantum theory is the inevitability of a minimum interference in the system, the impossibility of not disturbing its state. Therefore,

---

<sup>10</sup> Hilary Putnam, "How to Think Quantum-Logically", in *Logic and Probability in Quantum Mechanics*, ed. Patrick Suppes (Dordrecht: Reidel, 1975), 47.

<sup>11</sup> Lawrence Sklar, *Philosophy of Physics* (Oxford: Oxford University Press, 1992), 157.

the uncertainty appears as a limitation of our abilities to discern simultaneously the exact values of two conjugate properties of a system.

Bohr was not pleased with this interpretation and he insisted that the specification of a quantum state of a system represents a complete description of the system about which the quantum state was correctly predicated.

*The probability interpretation of the wavefunction:* Born interpreted the wavefunction as giving a probability. He was influenced by Einstein's suggestion that, for photons, the wave field acts as a weird certain type of 'ghost' field, which guides photons on tracks that can thereby be determined by the effects of interference of the waves. Thus, Born's interpretation is that the square of the amplitude of the wave function in a certain specific area of the configuration space is connected with the probability of finding the corresponding quantum particle in that area of the configuration space.

According to Born, the wave function represents the evolution of the state of our knowledge about a quantum system.

*Interpreting the eigenvalues as measured values of the observables:* the eigenvalues of operators correspond with the measured values of the observables for which the operators stand.

*The principle of correspondence:* everything that the quantum theory will predict about the quantum particles has to be consistent with macroscopic particles behaving in the Newtonian way. This requirement can be transformed in a prescription for calculating the commutators of the operators of the observables of quantum particles starting from the mathematical relations between the correspondent measurable properties of the classical theory.

Beside these principles, quantum mechanics, in its standard interpretation, has the following postulates:

1. (a) the state of a particle is represented by a vector in a Hilbert space.  
(b) the state of a quantum-mechanical system is completely described by the wavefunction  $\psi$ .
2. the observable quantities are represented by Hermitian operators that are consistent with the commutation relation between position and momentum  $[\mathbf{x}, \mathbf{p}] = i\hbar$
3. a quantum system evolves according to Schrödinger's equation  $(i\hbar \frac{d}{dt} |\psi(t)\rangle = \mathbf{H} |\psi(t)\rangle)$  as long as no measurement is made.
4. the result of the measurement of one property of a system, given the initial state of that system, can not be known with certainty in advance.
5. if a particle is in the state  $|\psi\rangle$ , the measurement of the variable that corresponds to  $\Omega$  will have as a result one of the eigenvalues  $\omega$  with the probability that

$P(\omega) \propto |\langle \omega | \psi \rangle|^2$ , i.e. in case of a measurement, the state vector of a system collapses into an eigenvector of the measured observable operator.

### Problems with the standard interpretation

As all the other interpretations of the quantum theory, the standard interpretation tries to avoid certain paradoxes that appear when the world of subatomic particles is taken into consideration. The problem with this interpretation is that it forces us to accept indeterminist laws, nonlocality, instrumentalism and subjectivism. Therefore, if we see physics as an aspiration to produce a true description of an objective reality, that is if we are scientific realists, we can only be displeased with the Copenhagen interpretation. Among those unsatisfied with this interpretation was Einstein, who considered that the quantum-mechanical description is incomplete:

If, in quantum mechanics, we consider the  $\Psi$ -function as (in principle) a complete description of a real physical situation we thereby imply the hypothesis of action-at-distance, an hypothesis which is hardly acceptable. If, on the other hand, we consider the  $\Psi$ -function as an incomplete description of a real physical situation, then it is hardly to be believed that, for this incomplete description, strict laws of temporal dependence hold.<sup>12</sup>

Barry Loewer identifies three problems that appear in connection with the Copenhagen interpretation:

- *it is vague*, because it does not say what type of interactions measurements are, and this omission is important because, according to this interpretation, the unmeasured systems evolve according to Schrödinger's law, and the measured ones according to the collapse postulate.
- *it is inconsistent*, because it makes assertions about the nature of the quantum-mechanical reality, but denies that one can know anything about that reality.
- *it is obscure*, because the relationship between the measurement and reality is obscure: what is so special about the measurements that they initiate the collapse?<sup>13</sup>

Another problem with this interpretation would be that it does not explain why the quantum states do not resemble at all the classical ones.

---

<sup>12</sup> Albert Einstein, summary to "Quanten-Mechanik und Wirklichkeit," *Dialectica* 2 (1948): 324.

<sup>13</sup> Barry Loewer, "Copenhagen versus Bohmian Interpretations of Quantum Theory," *The British Journal for the Philosophy of Science* 49 (1998): 3.

### The quantum logic interpretation

We can obtain alternative interpretations in two ways: either change the physical postulates of the quantum theory,<sup>14</sup> or change logic.

According to David Finkelstein, “one of the reasons that is so difficult to understand quantum mechanics is that our teachers fail to tell us it is illogical, violates the canons of classical logic.”<sup>15</sup> For example, if we take into consideration a particle, we can say about that particle (**Er**) – the position of the particle is r, and (**Er'**) – the momentum of the particle is r'; but we can not draw the conclusion that (**Er**)(**Er'**)(**the position of the particle is r, and the momentum is r'**).<sup>16</sup> Thereby, the following equivalence, which is a theorem in classical logic, is rejected:  $(\exists x) Fx \ \& \ (\exists y) Gy \leftrightarrow (\exists x) (\exists y) Fx \ \& \ Gy$ . Starting from here, those who adopt a logical interpretation of quantum mechanics say about all the logical relations that hold between the empirical/physical states that they are an empirical matter and are not given a priori.

We can argue in several ways that, in the case of quantum mechanics, the underlying logic of the events is a non-classical logic:

(A) one way would be that of identifying ‘the logic’ of the probabilistic theory with the algebraic structure of the set of events to which the probability is assigned. But the algebra of the events in quantum mechanics is not Boolean and therefore neither the logic can be Boolean.<sup>17</sup>

For example, in the case of the double-slit experiment,

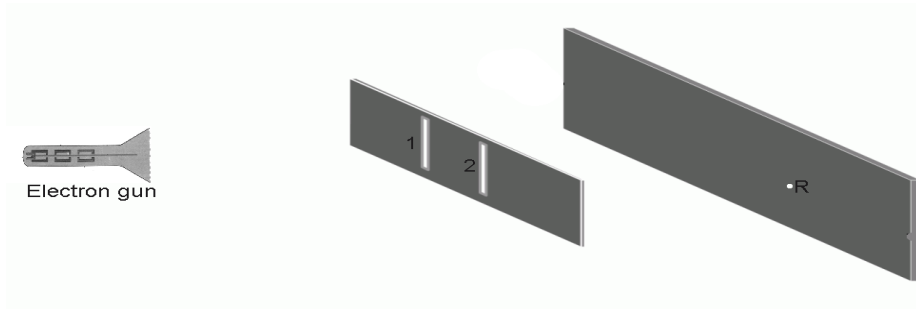
<sup>14</sup> The case of Bohm’s interpretation, for example.

<sup>15</sup> David Finkelstein, “Matter, Space and Logic,” in *Boston Studies in the Philosophy of Science*, vol. 5, 203.

<sup>16</sup> The uncertainty principle stops us from doing this.

<sup>17</sup> We can say about a given set L that it is a Boolean algebra, if the following laws are satisfied by it: :

- $x \cup y = y \cup x$ ,  $x \cap y = y \cap x$  – the commutative law
- $x \cup (y \cap z) = (x \cup y) \cap z$  – the associative law
- $x \cup (y \cap x) = (x \cup y) \cap x$  – the absorption law
- $x \cup (y \cap z) = (x \cup y) \cap (x \cup z)$  – the distributive law
- $x \cup x = x \cap x = x$  – the idempotent law
- **the law of complementarity:** if there is a smallest element 0 and a largest element I, then for every element x there is an element x' that satisfies the following:  $x \cup x' = I$ ;  $x \cap x' = 0$ .



if  $P(A_i, R)$  is the probability that an electron passes through  $i$  ( $i = 1,2$ ) and hits region  $R$  of our screen, and if the emission pattern is symmetrical, we have:

$$P(A_1) = P(A_2) = P(A_1 \vee A_2) / 2.$$

Then we can derive the following equation:

$$\begin{aligned} P(A_1 \vee A_2, R) &= P(A_1 \vee A_2, R) / P(A_1 \vee A_2) \\ &= P(A_1, R \vee A_2, R) / P(A_1 \vee A_2) \\ &= P(A_1, R) / P(A_1 \vee A_2) + P(A_2, R) / P(A_1 \vee A_2) \\ &= P(A_1, R) / 2 P(A_1) + P(A_2, R) / 2 P(A_2) \\ &= \frac{1}{2} P(A_1, R) + \frac{1}{2} P(A_2, R)^{18} \end{aligned}$$

The problem we confront with is that this equation does not hold in quantum mechanics.

(B) another way would be to “just read the logic off from the Hilbert space  $H(S)$ .”<sup>19</sup>

In quantum mechanics, the state of a physical system  $S$  is represented by a vector in a Hilbert space  $H(S)$ . An assertion about  $S$ , e.g.  $m(S) = r$  (the physical quantity  $m$  has the value  $r$  in system  $S$ ) is coordinated with a subspace  $S(p)$  of  $H(S)$ , where  $p$  is  $m(s) = r$ . We can form complex propositions in this context, as following:  $S(p \oplus q)$  = the span of  $S(p)$  and  $S(q)$ ;  $S(p \cap q)$  the intersection of  $S(p)$  and  $S(q)$ ;  $S(\perp p)$  = the ortocomplement of  $S(p)$ .

We can establish the following equivalence between the logical connectors  $\vee, \&, \sim$  and the operations of reunion, intersection and complementary of the lattice formed by the propositions of the language of state attribution in quantum

<sup>18</sup> See Putnam, “Is Logic Empirical,” 223; Michael Gardner, “Two Deviant Logics for Quantum Theory: Bohr and Reichenbach,” *British Journal for the Philosophy of Science* 23 (1972): 90.

<sup>19</sup> Putnam, “Is Logic Empirical,” 222.

mechanics:  $\vee$  (disjunction) corresponds to  $\oplus$ ,  $\&$  (conjunction) corresponds to  $\cap$ ,  $\sim$  (negation) corresponds to  $\perp$ . Now it is easy to understand why the distributive law does not hold in quantum mechanics: the lattice with whose operations the above logical operations are equivalent is non-distributive. Therefore in the resulted logic it can not appear the distributive law from classical logic.

I said above that the quantum logician has to offer strong reasons for adopting the revision he proposes. Putnam offers such reasons. If we accept this revision, we can offer a realist interpretation for quantum mechanics and we escape all the anomalies put forward by the other interpretations.

We can distinguish the following features of the quantum-logic interpretation of quantum mechanics:<sup>20</sup>

1. the measurement does not produce the observable measured and does not determine something that was not already the case. It is a physical interaction as any other.
2. the probability enters the quantum theory as it enters the classical physics.
3. the Hilbert spaces used in quantum mechanics are only mathematical representations of some logical spaces: there is an isomorphism between the lattice formed by the subspaces of a Hilbert space under the relation of 'the subspace of' and the lattice formed by the physical propositions about the quantum system under the relation of implication.<sup>21</sup>

We can see from the map traced above that we have two alternatives: either keep the classical logic and accept a paradoxical physics, or adopt a new logic and escape this way the paradoxes.

### Prospects for a revisionist approach

A powerful challenge for the revisionist would be that of showing that the quantum logic is 'the true logic' and that we must abandon classical logic. So, he must answer to the preservationist, who argues that "the little language of state-attributions, whose 'inner logic' is not classical, is a fragment of a larger language, whose logic is classical."<sup>22</sup> The argument offered by the preservationist is very simple: the logic of the language in which we made this presentation of quantum logic is classical. We didn't have to abandon classical logic in order to understand it.

---

<sup>20</sup> In Putnam's view. See his "How to Think Quantum-Logically."

<sup>21</sup> Putnam, "How to Think Quantum-Logically," 49-51.

<sup>22</sup> van Fraassen, *Quantum Mechanics*, 135.

To find a way out of this difficulty, we must turn our attention for a moment to philosophical logic, especially to the problem of logical constants, i.e. the logical vocabulary. How do we delimitate this vocabulary from the extra-logical one? We can distinguish between three answer strategies: (i) the logical vocabulary is simply specified by enumeration; (ii) we seek a criterion for constancy; (iii) by searching for an understanding of the goal of a logical theory and the way in which this goal has to be achieved.<sup>23</sup>

In the remaining of this paper I will present broadly the third strategy as it appears in Warmbrod's paper because, as I will show at the end, the alternative proposed by Warmbrod to the discussed strategies helps us very much in our project of establishing the possibility of adopting a new revisionist position.

I said that in the third strategy of response, *we search for an understanding of the goal of a logical theory and the way in which this goal has to be achieved*. Warmbrod distinguishes between two ways of understanding these goals:

- a) what it is aimed is the formal characterization of the logical consequence and the logical truth on the basis of some pre-theoretical intuitions about necessity, apriority and form. From this perspective the logical constants are those terms whose meaning is fixed in order to have a theory of logical consequence and logical truth that is in accordance with these pre-theoretical intuitions.<sup>24</sup>

The thing with this way of characterizing logical consequence and logical truth is that when we try to see the logical theories in light of the fact that they respect or not certain pre-theoretical intuitions, we stumble upon the following problem: these intuitions are very controversial:

- (i) in the case of necessity and a priori knowledge it is well known Quine's critique.
- (ii) in the case of the intuitions concerning the logical form, it is unclear if ordinary people have these sorts of intuitions.

As it can be seen, this strategy goes into conflict with a generally accepted idea, that the foundations of logic should be as safe and as less controversial as possible.

---

<sup>23</sup> For a detailed discussion of these strategies, see Ken Warmbrod, "Logical Constants," *Mind* 108 (1999): 503-538.

<sup>24</sup> Tarski, for example, appeals to the intuitions about necessity in order to justify the definition given to the logical consequence. See also Gila Sher, who considers that the distinction between the logical and extra-logical terms is based on our pre-theoretical intuitions that logical consequence differ from the material ones by being necessary and formal.



- b) what we are after is to find a conceptual framework suited for the project of the deductive systematization of scientific theories. This is the alternative proposed by Warmbrod to the above strategies. Warmbrod considers that a logical theory includes (i) a core theory meant to characterize the logical consequence and the logical truth in a way that avoids the appeal to intuitions and which provides a frame in which other more controversial theories can be formulated; (ii) an extended theory that consists of different theories formulated as extensions of the core theory. These extensions are intended to formalize our intuitions about necessity, apriority, etc.

1. *The core theory* – is built as a theory of the deductive systematization: what we are concerned with is the contribution of logic to the scientist's task of constructing and testing theories about the world. Warmbrod distinguishes the following things the scientist is interested in:

- (i) to clarify the sentences made by the theory. This deductive systematization will help reach this objective as follows: once we have a definition of the logical consequence, the set of sentences of the theory can be clarified by choosing a set of axioms.
- (ii) to communicate the theory to other scientists. Because the set of sentences of the theory is infinite, it can not be communicated by a list. If we have a logical theory, this problem is solved because the scientific theory can be presented by listing the axioms and indicating the assumed logical theory.
- (iii) to allow the systematic testing of the theory. This task is realizable only if the notion of logical consequence is truth-preserving. For that we need to link the concept of logical consequence to the concept of truth. But since the concept of truth is a semantic one, a purely syntactic explanation of the consequence relation is out of the question and we must appeal to a theory of truth that specifies a truth condition for each sentence of the language. At this moment, to define the logical consequence, we can use Tarski's suggestion concerning the connection between the consequence relation and truth. We have the following definition: The logical consequence is a relation that holds when all the permitted assignments that make the premises true also make the conclusion true.
- (iv) to allow a comparison of the theories. The logical theory suited for this task is a theory that solves as few of the theoretical controversies as possible.

The problem that remains is to show which are the logical constants. At this point we should take into account in our decision the scientist's intuitions about the theory's content (these are pre-theoretical identified). Another thing that we

should take into account is the minimalist constraint which says that a logical theory suited for the purpose of providing a conceptual apparatus for the project of systematization should be as simple, as modest in assumptions and as flexible as possible.

What set of constants is adequate? First of all, we should count the veri-functional connectors. We need the negation ‘ $\sim$ ’, because every scientific theory postulates entities and claims that an entity satisfies or not certain conditions. Also, any theory will claim that an entity satisfies one out of two conditions, without specifying which, thus we need the disjunction ‘ $\vee$ .’ If a logical theory contains ‘ $\sim$ ’ and ‘ $\vee$ ,’ it must also contain all the veri-functional consequences of them.

2. *The extended theory.* Beside this conceptual framework adequate to the deductive systematization of science, we might search for a theory that is richer than the core theory, but which remains neutral, in the sense that it doesn’t presuppose anything about the type of entities that exist. Also, we might want to formalize not only theories about the world, but a particular mode of talking about the world.<sup>25</sup>

The reason why I made this long detour from our main subject should by now be transparent. We know that choosing the logical constants determine which propositions are logical truths. If we adopt Warmbrod’s strategy of choosing these constants, we obtain a way of justifying the revisionist approach. Let’s take just one case: in quantum mechanics, for any two propositions **a** and **b**, their disjunction (**a**  $\vee$  **b**) can be true without either **a** or **b** being true. Thus, when we choose the set of adequate constants for the task proposed by Warmbrod, we choose the constants of quantum logic, not of classical logic.

The preservationist can reply here that this is in perfect agreement with his position: quantum mechanics has a logic of its own, but when scientists are reasoning about the macroscopic world they are not using quantum mechanics, so quantum logic should be restricted to the quantum world. This is possible only because the subatomic world of quantum particles is very different from the macroscopic world, and our present quantum theory doesn’t explain why the world of our everyday experiences looks the way it does. But, if we are optimistic about the chances of finding a unified theory, we have to be optimistic about the prospects of replacing the classical logic with something at least resembling quantum logic.

---

<sup>25</sup> Warmbrod, “Logical Constants,” 517-536.

# CONTINGENCY AND TIME

Gal YEHEZKEL

**ABSTRACT:** In this article I offer an explanation of the need for contingent propositions in language. I argue that contingent propositions are required if and only if there is a need for propositions which can be both true and false in different circumstances. Indexical expressions enable the same proposition to be expressed in different contexts, thus allowing it to be both true and false. Examination of the different indexical expressions shows that temporal indexical expressions are the ones that do this. Furthermore, describing the change in the temporal A-determinations of past, present, or future, requires using contingent propositions. The conclusion of this article is that change in the temporal A-determinations is the explanation for the need for contingent propositions in language.

**KEYWORDS:** contingency, indexicals, time

## 1.

Language includes two types of propositions: contingent propositions, which are both possibly true and possibly false; and non-contingent propositions (that is, tautologies and contradictions), which are either necessarily true or necessarily false. The two types of propositions can be viewed as characterizing different fields of discourse. While contingent propositions describe the physical and the mental realms, tautologies describe the mathematical and the logical realms.

The question I discuss in this article is what accounts for the difference between the different fields of discourse. Why do some fields of discourse, for example include propositions which can be both conceivably true and conceivably false (that is, contingent propositions), rather than only propositions which can be either conceivably true or conceivably false, but not both (that is, tautologies and contradictions). In other words: what feature, or features, of reality account for why contingent propositions are needed to describe the physical and the mental realms, and superfluous for describing the mathematical and the logical realms.

I begin my inquiry in the next section by discussing the need for contingent propositions in any field of discourse. I argue that contingent propositions are required in any field of discourse if and only if there is a need for propositions which can actually be both true and false (in different circumstances). Several questions arise at this stage. Firstly, notwithstanding the previous conclusion, it is doubtful whether the same proposition can actually be both true and false. It is necessary in this context to distinguish between a sentence and a proposition.

Obviously, a sentence, as a structures combination of signs, can in different circumstances express different propositions, and therefore can express in different circumstances propositions with different truth-values. However, in the present context it is assumed that the same proposition can be both true and false, rather than that the same sentence can express different propositions with different truth-values.

In section 3 I discuss the possibility of the same proposition being actually both true and false. I distinguish between demonstrative and indexical expressions, and argue that only the latter expressions enable the same propositions to be expressed in different contexts, thus making it possible for the same proposition to be both true and false in different circumstances. This implies that only indexical expressions can explain the contingency of propositions in language. The proof that indexical expressions enable the same propositions to be expressed in different contexts depends on another important assertion, according to which indexical expressions are irreducible, and therefore indispensable for describing reality. This implies that there are features of reality whose description necessitates the use of indexical expressions.

In the sections that follow I examine the different indexical expressions, which include the first-person ('I'), the spatial indexical expression 'here,' and the temporal indexical expression 'now,' in order to determine which indexical expression (or expressions) actually does enable the same proposition to be both true and false. In section 4 I show that the indexical expression 'I' does not enable the same proposition to be both true and false. In section 5 I show that the spatial indexical expression 'here' does enable the same proposition to be both true and false. However, the spatial indexical expression 'here' not only assumes the temporal indexical expression 'now,' but is also reducible to it. This conclusion implies that the explanation for the possibility of the same proposition being both true and false lies in the temporal indexical expressions. In section 5 I examine the temporal indexical expression 'now,' and show that the temporal indexical expression 'now' enables the same proposition to be both true and false in different circumstances.

My conclusion is that the change in the temporal A-determinations of past, present (now), and future explains the need for propositions which can actually be both true and false, and therefore that contingent propositions are needed to describe such change. Thus, the conclusion of my article is that time, and more specifically the change in the determinations of past, present and future, is the feature which explains the difference between the contingent and the necessary

fields of discourse. This, I believe, explains the affinity between time and modality, as reflected, for example, in Spinoz'a *Ethics* and in modern logic.<sup>1</sup>

## 2.

The question I am asking can be clarified by the following example. Consider the following simple hypothetical reality  $R_1$ , which consists of a two-dimensional space, which is either black or white:

$R_1$		1	2	3	4	5
A	■	■	■	■	■	■
B	■	■	■	■	■	■
C	■	■	■	■	■	■
D	■	■	■	■	■	■
E	■	■	■	■	■	■

Reality  $R_1$  can be fully described with the help of only 25 sentences, which include two spatial coordinates and one of color, thus: A-1-B[lack], A-2-W[hite], A-3-B, and so on.<sup>2</sup> Any other combination of signs, for example, A-1-W, which expresses a false proposition, is superfluous for describing reality  $R_1$ . This seems to imply that such combinations of signs, which supposedly express false propositions, need neither express contingent propositions, nor even be considered a meaningful combination of signs, in the language which is used to describe reality  $R_1$ . Furthermore, it seems that for a language to fully describe reality  $R_1$ , the combinations of signs which express the true propositions, that is, A-1-B, A-2-W, and so on, need not express contingent propositions.

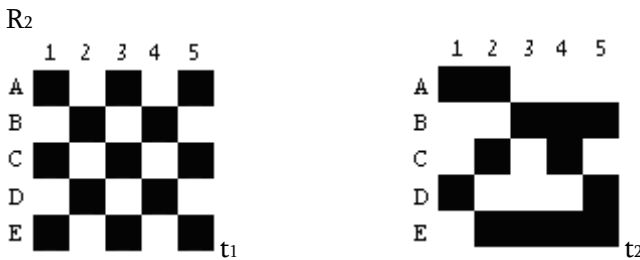
If the previous considerations are correct, reality  $R_1$  can be fully described by a language whose semantic rules imply, for example, that the combination of signs "A-1-B" expresses a true proposition, while the combination of signs "A-1-W" expresses a false proposition. An example for this suggestion can be found in the semantic rules of propositional calculus, which imply that the combination of

<sup>1</sup> See, for example, Benedictus de Spinoza, *Complete Works*, trans. Samuel Shirley (Cambridge: Hackett, 2002), part 2, proposition 44, corollary 1; Josh Parsons, "A-theory for tense logicians," *Analysis* 63 (2003): 4-6.

<sup>2</sup> Russell and Wittgenstein were divided on the question whether a complete description of a reality requires a general proposition. While Russell thought that there are general facts (Bertrand Russell, "The Philosophy of Logical Atomism," in his *Logic and Knowledge* (London: George Allen & Unwin, 1956), 183-84, 236), Wittgenstein thought the opposite (Ludwig Wittgenstein, *Tractatus Logico-Philosophicus*, trans. David F. Pears and Brian F. McGuinness (London: Routledge & Kegan Paul, 1963), 4.26). However, this debate is irrelevant for the present example, because the number of facts in reality  $R_1$  is fixed and finite.

signs “ $p \vee \sim p$ ” expresses a true proposition, while the combination of signs “ $p \wedge \sim p$ ” expresses a false proposition. In fact, it seems that in order to fully describe reality  $R_1$  it is possible to use a language in which the combinations of signs “not-A-1-B” and “A-1-W” will not even be a syntactically well formed sentence, in the same sense in which the combination of signs “ $p \sim p$ ” is not a well formed formula in propositional calculus. Thus, it seems that the minimal conceptual complexity which is needed in order to fully describe reality  $R_1$  includes only 25 necessary propositions. Furthermore, in the spirit of the *Tractatus* it might be said that the conceptual complexity of the language should reflect the complexity of the reality that it represents.<sup>3</sup> If contingent propositions are not required for describing reality  $R_1$ , it seems that reality  $R_1$  should not, and perhaps even cannot, be described by the use of contingent propositions.

It may seem that time is an obvious candidate for explaining the need for contingent propositions for describing reality. In order to examine this suggestion, let us consider a hypothetical temporal reality  $R_2$ , which results from the addition of time to reality  $R_1$ . For simplicity, I assume that this reality includes only two different times,  $t_1$  and  $t_2$ , thus:



Prima facie, the proposition A-5-B is true at time  $t_1$  while false at time  $t_2$ . If this is correct, then this proposition must be contingent in order to allow for a full description of reality  $R_2$ . The question, however, is how to understand the proposition “A-5-B”: is it a general proposition, namely that there is a time in which the color of A-5 is black; or a specific one, namely that at that specific time the color of A-5 is black? If the former is the correct interpretation of proposition “A-5-B,” then this proposition is true both at time  $t_1$  and time  $t_2$ , and need not be a contingent proposition. If the latter is the correct interpretation of the proposition “A-5-B,” then this proposition has an implicit temporal component, and should be explicitly formulated as, for example, “A-5-B- $t_1$ .” According to this interpretation, reality  $R_2$  is fully described with the help of 50 necessary propositions, which include 2 spatial coordinates, a color coordinate, and a temporal coordinate. The

<sup>3</sup> Wittgenstein, *Tractatus Logico-Philosophicus*, 4.04.

conclusion seems to follow, therefore, that describing reality  $R_2$  does not necessitate the use of contingent propositions.

It should be noted that the previous analysis is not committed to any realist assumptions. Even if the explanation of truth in term of correspondence is misleading, or even outright false, it has no bearing on the previous analysis. The question is, given the fact that in certain areas of discourse some of the propositions are true and others are false, what is the explanation for the possibility of these propositions being both possibly false and possibly true. The distinction between reality and the language used for its description is nothing but a useful device for investigating the function that contingent propositions fulfill in language.

This analysis of the need for contingent propositions might be criticized for concentrating on the use of language for the purpose of describing. For, as (the later) Wittgenstein has taught us, language is used in various ways for different purposes, which are not necessarily associated with descriptions.<sup>4</sup> In answer to this criticism, it should be noted that the question I am asking necessarily relates to the use of language for describing. For the question under consideration relates specifically to propositions – rather than questions, commands or requests, which cannot be characterized either as contingent or as necessary – and therefore specifically relates to the use of language for describing.

It may be objected that the demand that a certain complexity of language be actually used, in order to explain its need, is too strong. In order to explain why a certain complexity of language is needed for describing reality, all that we are required to show is that this complexity describes a possible state of affairs. In the case under consideration, the need for any contingent proposition  $p$  is explained by the fact that reality includes both the possibility that  $p$  and the possibility that not- $p$ . Thus, according to this objection, the hypothetical reality  $R_1$  includes 50 different possible states of affairs, 25 of which are actualized. Hence the language which is needed in order to fully describe reality  $R_1$  consists of 50 contingent propositions, of which 25 proposition are actually true. Alternatively, the same objection can be formulated in terms of 'possible worlds': language must describe not only the actual world, but all the possible worlds which are accessible from the actual world.

The answer to this objection is that it is misguided. Obviously, if reality includes unrealized possibilities, the language which is needed in order to describe this reality must include these possibilities. Likewise, if it is assumed that the idea

---

<sup>4</sup> Ludwig Wittgenstein, *Philosophical Investigations*, trans. Gertrude E. M. Anscombe (Oxford: Basil Blackwell, 1953), paragraph 23.

of possible worlds gives an accurate account of modality, it is clear that the language used for describing the actual world must not only include the conceptual complexity which is required to describe not only the actual world, but also all the accessible possible worlds. However, the question is what explains the inclusion of these possibilities in a certain reality? For example, if indeed reality  $R_1$  includes the possibility of A-1-W, what constitutes this possibility? What can explain the difference between a reality which includes the possibility of A-1-W and a reality which does not include this possibility? Or, using the idea of possible worlds, what can explain the difference between a reality in which the actual world is the only possible world and a reality in which the actual world is only one of many possible worlds which are accessible from it? The attempts to rely on these notions in order to explain the need for contingent propositions fail, for they only restates in different terms what calls for an explanation. Obviously, their failure to offer a substantive answer to the question I am asking does not imply that they are not beneficial or fruitful for investigating other aspects of modality. However, in the present context they leave the question under consideration unanswered.

A different attempt to explain the need for contingent propositions is to turn to epistemology. The suggestion is that although reality may be described without using contingent propositions, the fact that we do not know which state of affairs actually obtains forces us to use a language which includes contingent propositions, that is, propositions which can be both conceivably true and conceivably false. However, this suggestion fails, for the supposition that we do not know if a state of affairs obtains or not assumes that both possibilities are open, and therefore assumes, rather than explains, the conceptual complexity which is reflected by contingent propositions.

What is required, in order to explain the need for a certain conceptual complexity for describing reality, is to show how this complexity is actually used for describing reality. The conceptual complexity of contingent propositions, which is currently under consideration, is reflected by the possibility that propositions may be both true and false. This implies that in order to explain why contingent propositions are needed to describe a certain realm of reality, it must be shown that describing this realm of reality requires some propositions to be true on some occasions and false on others.

It follows from the previous consideration that the need for contingent propositions for describing reality can be found only in propositions whose truth-value is not absolute, but varies in different circumstances. Obviously, showing that describing a certain realm of reality requires the use of propositions whose



truth-value varies in different circumstances proves that one type of contingent propositions, that is, contingent propositions whose truth-value varies in different circumstances, are necessary for describing this realm of reality. However, propositions whose truth-value varies in different circumstances can also explain the inclusion in language of contingent propositions with an absolute truth-value. For contingent propositions with an absolute truth-value can be reduced to propositions whose truth-value varies in different circumstances. For example, sentences which include the temporal indexical expressions 'past,' 'present,' and 'future' can be used to define contingent propositions with an absolute truth-value of the type " $\psi$  precedes  $\phi$ ," thus: " $\psi$  precedes  $\phi$ " if and only if " $\psi$  preceded  $\phi$  in the past, or  $\psi$  precedes  $\phi$  now, or  $\psi$  will precede  $\phi$  in the future."<sup>5</sup>

It is doubtful, however, whether the same proposition can be both true and false in different contexts. In fact, some may argue that if a sentence expresses propositions with different truth-values in different circumstances, then it follows that it does not express the same proposition in different circumstances. I should stress that it is necessary, in order to explain the need for contingent propositions, for the same proposition to be both true and false in different circumstances, rather than for the same sentence, that is, the same combination of signs, to express both true and false propositions in different contexts. In the next section I present a proof that indexical expressions let the same proposition be expressed in different circumstances. This proof relies on a second claim, which is important for the present discussion, according to which indexical expressions are indispensable for describing reality. This is due to the fact that indexical expressions are irreducible to expressions which do not include indexical expressions, and therefore descriptions which do not include indexical expressions cannot be synonymous with descriptions which include indexical expressions. Together the two claims show that indexical expressions can explain why

---

<sup>5</sup> Arthur N. Prior, *Papers on Time and Tense* (Oxford: Clarendon Press, 1968), 64. The truth-value of almost all propositions in some natural languages is sensitive to time. This is due to tense, which does not allow temporally neutral propositions to be formulated in these languages. However, it is possible to introduce a convention, according to which propositions in the present tense which do not include temporal indexical expressions are interpreted as temporally neutral propositions. Thus, according to this convention, the propositions " $a$  is  $F$ " is interpreted as " $a$  was  $F$ , or  $a$  is  $F$  now, or  $a$  will be  $F$ ." As mentioned by Frege, this is not an arbitrary convention, for there are times in which the present tense is used in order to remove temporal restrictions, as in the case of mathematical propositions (Gottlob Frege, "Logical Investigations: Thoughts," in *Collected Papers on Mathematics, Logic and Philosophy*, ed. Brian F. McGuinness, trans. Peter. Geach and Robert H. Stoothoff (Oxford: Basil Blackwell, 1984), 358 [64]).

contingent propositions are needed for describing reality. What remains to be examined, in the sections that follow, is which indexical expression actually enables the same proposition to be both true and false.

### 3.

The following sentences include different indexical and demonstrative expressions:

- (1). This is New-York.
- (2). I live in New-York.
- (3). Dan lives here.<sup>6</sup>
- (4). There is no university in New-York now.

The first distinction I would like to turn attention to is the distinction between demonstrative expressions, for example, 'This' in sentence (1), and indexical expressions, for example 'I,' 'here,' and 'now' in sentences (2)-(4).<sup>7</sup> The expression 'This' is a demonstrative expression, because its reference is determined either by the intention of the speaker who utters this expression, or by an accompanying act of demonstration.<sup>8</sup> It is impossible to utter, for example, "This is New-York," without intending to refer to something specific, or without an accompanying act of demonstration, and yet to successfully refer to anything, or express a proposition. The category of demonstrative expressions includes, for example, the expressions 'That,' 'you,' 'he'/'she,' and 'here.'<sup>9</sup> In contrast, the reference of indexical expressions, such as 'I,' 'here,' and 'now,' is independent of the intention of the speaker or an act of demonstration, and is determined exclusively by the circumstances of their use.<sup>10</sup>

---

<sup>6</sup> The sentence should be understood as tenseless, that is, as: "Dan lived, lives, or will live here." This lets me focus on the spatial indexical component of the sentence.

<sup>7</sup> The distinction between demonstrative and indexical expressions derives from Kaplan. See: David Kaplan, "Demonstratives," in *Themes from Kaplan*, ed. Joseph Almog, John Perry and Howard Wettstein (Oxford: Oxford University Press 1989), 490-91.

<sup>8</sup> There is a controversy as to what determines the reference of a demonstrative expression. However, this controversy has no significance for the present discussion.

<sup>9</sup> The expression 'here' can be used both as a demonstrative expression, for example, when the speaker points to certain place and says: "We shall park here tonight," and as an indexical expression, in which it is used to refer to the position of the speaker. I should point out that in sentence (3) the expression 'here' is used as an indexical expression.

<sup>10</sup> The scope of their reference (for example, whether the indexical expression 'now' refers to the present day or the current year) can, however, be determined by the intention of the speaker.

Each of the demonstrative and the indexical expressions which appear in sentences (1)-(4) lets the same sentence express propositions with different truth-values in different circumstances. However, the question is whether these expressions enable the same proposition to be both true and false. This depends on whether the sentences which include these expressions express the same proposition in the different circumstances in which they are used.

Some might argue that the possible difference in truth-value indicates that different propositions are being expressed by sentences (1)-(4) in different circumstances. However, that depends on the specific understanding of the term 'proposition.' There are different legitimate uses for this term that depend on its function in the confines of a specific conception of language, which itself may be concerned with different aspects of language. Further complexity is introduced because of the special topic of indexical expressions, which raises further difficulties.<sup>11</sup> Fortunately, in the present context there is no need to go into this intricate field. In the confines of the present discussion, which concerns only the question of contingency, it is sufficient to rely on a general characterization of the term 'proposition,' which need not resolve all the difficulties and contentions surrounding this notion. What concerns me in this context is the distinction between a sentence, as a mere combination of signs, and the content of the sentence, which is the subject of the truth-value.<sup>12</sup> The basis of this distinction is the arbitrary relation which obtains between signs and content: the same signs can be used in order to express different content, and the same content can be expressed by different signs. This distinction does not rely on any complicated theoretical considerations, and can be demonstrated with the help of a simple (if not trivial) example: the same sentence can express different propositions, for example, "Dan was at the bank"; while different sentences can express the same proposition, for example, "Dan has a canine" and "Dan has a dog."

The criterion I use in order to determine whether the same proposition is expressed by the same sentence in different circumstances is this: if the same sentence expresses different propositions in different circumstances, it is possible to distinguish between the different propositions with the use of different signs.<sup>13</sup>

---

<sup>11</sup> See, for example, John Perry, "The Problem of the Essential Indexical," *Nous* 13 (1979): 3-21.

<sup>12</sup> Obviously, this characterization does not imply that a difference in truth-value (in different circumstances) indicates a different content.

<sup>13</sup> I do not suggest that this is the only possible criterion. However, I should point out that it is impossible to use Frege's criterion for a difference in sense, in order to determine whether the same proposition is expressed in different circumstances (Gottlob Frege, "On Sense and Reference," in *Translations from the Philosophical Writings of Gottlob Frege*, ed. and trans.

The consideration which supports this criterion is straightforward: This distinction between sentences and propositions stems from the arbitrary relation that obtains between signs and content. The claim that different content is expressed by the same sentence therefore implies that the use of the same signs in order to express this content is coincidental. This distinction therefore implies the possibility of distinguishing between the different contents by the use of different signs.

I should point out that this criterion does not assume that every language actually contains the linguistic complexity (in contrast to the conceptual complexity) which lets any two different propositions formulable in that language be expressed by the means of two different sentences. This criterion assumes, however, that it is possible to introduce into every language the linguistic complexity which is needed in order to reflect its conceptual complexity, thus enabling any two different propositions in that language to be formulated by means of different sentences. This can be done simply by introducing new words into that language, which would reflect the conceptual distinctions which that language includes.

An important implication of this criterion is this: Suppose we examine whether two occurrences of the same sentence express the same proposition. This criterion implies that if a certain sign (or combination of signs) can be used in order to substitute part of the sentence in one occurrence with any sign, without any change in meaning, but not in the other occurrence of this sentence, then it follows that these sentences express different propositions. If, however, it is always possible to use the same sign (or combination of signs) in order to replace parts of a sentence in each occurrence, without a change in meaning, then it follows that these sentences express the same proposition in all circumstances. In order to understand this criterion, let us examine the sentence mentioned earlier, "Dan was at the bank." This criterion implies that if it is possible to replace the word 'bank' in one occurrence of this sentence with 'land alongside a river or a lake,' without a change of meaning, but not in another occurrence of this sentence, then it follows that different propositions are expressed in each circumstance. If, on the other hand, whenever a certain phrase can be used to substitute the word 'bank' in one occurrence of this sentence, without a change in meaning, the same phrase can also be used in order to replace the word 'bank' in

---

Peter Geach and Max Black (Oxford: Basil Blackwell, 1970), 56-57 [25-26]). For, as has been argued by Evans, Frege's criterion is not applicable to at least some of the cases currently under consideration (Gareth Evans, "Understanding Demonstratives," in *Demonstratives*, ed. Palle Yourgrau (Oxford: Oxford University Press, 1990), 84-85).

the other occurrence of this sentence, then the same word is used with the same meaning in both occurrences. Thus, it is possible to conclude that the same proposition is expressed on both occasions.<sup>14</sup>

This criterion can therefore be used in order to determine whether demonstrative and indexical expressions let the same sentence in which they appear express the same proposition in different circumstances. This criterion can be used in order to determine, for example, whether the sentence (1) "This is New-York" expresses the same proposition whenever it is used, or whether it expresses a different proposition each time: if it is possible to replace the word 'This' with another expression, without a change in meaning, on one occasion, but impossible to replace this word with the same expression on another occasion without a change in meaning, then it follows that on each occasion this sentence is expressing a different proposition.

However, in light of the above, a simpler way of deciding on this question is available: The question I am considering is whether two occurrences of a sentence, in which there is an indexical or a demonstrative expression, express the same proposition. If different propositions are expressed on each occasion, then according to the criterion I formulated earlier it must be possible to replace this expression on one occasion with a different expression, without a change in meaning, but not on the other occasion. That is, it must be possible to express each proposition by means of a sentence which uniquely conforms to this proposition. This, however, is tantamount to a reduction of these expressions.

Thus, suppose it is shown that either demonstrative or indexical expressions are irreducible, in the sense that a sentence which includes an expression of this category is not synonymous with any sentence which does not include these expressions. This implies that it is not possible to replace these expressions with any expression in one occasion, without a change of meaning, but not in another occasion. According to the criterion I formulated earlier, this conclusion indicates that sentences which include these expressions express the same proposition on the different occasions of their use. The irreducibility of these expressions therefore implies that they let the same proposition be expressed on the different occasions.

Turning our attention first to demonstrative expressions, it seems that these expressions are reducible, in the sense that in each occasion of their use they can be replaced with expressions which do not include demonstrative expressions. It

---

<sup>14</sup> This criterion may seem vacuous, for its application seems to assume that it is possible to distinguish between the different meanings of the word 'bank' in each occurrence of this sentence. As I show next, this criterion is still useful for the current purpose.

makes no difference whether the reference of a demonstrative expression is determined by the intention of the speaker or by an accompanying act of demonstration. Either way, each occurrence of a demonstrative expressions can be replaced by a description, which either describes the intention of the speaker or the accompanying act of demonstration. For example, a particular occurrence of the demonstrative expression 'this,' which occurs in the sentence (1) "This is New-York," can be replaced by either the "The city we are seeing,' or 'The city I am pointing at.'

Thus, in the case of demonstrative expressions there are two possibilities: either the demonstrative expression can be replaced by an expression which includes an indexical expression or it can be replaced by an expression which does not include an indexical expression. If the demonstrative expression can be replaced by an expression which does not include an indexical expression, then the resulting sentence expresses the same proposition in each occasion of its use. However, the truth-value of this proposition is absolute, as it is independent of the circumstances in which the sentence is expressed. If the demonstrative expression is replaced by an expression which includes an indexical expression, then the question is whether indexical expressions let the same proposition be expressed on different occasions, as discussed next. It can therefore be concluded that demonstrative expressions do not let the same proposition be expressed on the different occasions of their use.

Turning now to indexical expressions, it is important to stress the fact that the reference of these expressions is not determined by the intention of the speaker or an accompanying act of demonstration. A significant implication of this fact, which distinguishes indexical expressions from demonstrative expressions, is that indexical expressions are irreducible. As I explained earlier, the irreducibility of indexical expressions implies that in different occasions of their use, sentences which include indexical expressions express the same proposition.

The claim that indexical expressions are irreducible originates from the writings of Perry (although Perry himself did not distinguish between demonstrative and indexical expressions.<sup>15</sup> Perry's contention, which is formulated in terms of Frege's conception of language, is that sentences which do not include indexical expressions do not have the same sense as sentences which include them. Obviously, indexical expressions are not generally reducible, in the sense that it is impossible to replace all the occurrences of an indexical expression with a single expression which does not include indexical expressions. This is clear from

---

<sup>15</sup> John Perry, "Frege on Demonstratives," *The Philosophical Review* 86 (1977): 474-97; Perry, "The Problem of the Essential Indexical," 3-21.

the fact that a sentence which includes an indexical expression expresses in different circumstances a proposition, or propositions, with a different truth-value, while a sentence which do not include indexical expressions expresses a proposition with a determined truth-value in every occasion. However, it is also impossible to replace a specific occurrence of an indexical expression with an expression which does not include indexical expressions. Any attempt to replace an occurrence of an indexical expression will result in a sentence with a different sense, as Frege's criterion for a difference in sense clearly shows:<sup>16</sup> For any expression  $\varphi$ , with which we attempt to replace, for example, the indexical expression 'now' in the sentence "The meeting takes place now," it is possible to believe that "The meeting takes place at  $\varphi$ ," but not that "The meeting takes place now," or vice versa.

It is important to note that Frege's criterion, although formulated in epistemic terms, actually relies on the semantic difference between the two sentences. Obviously, it is possible for someone who does not understand the meaning of either of the sentences "Dan is a bachelor" and "Dan is man who has never married" to accept one while rejecting the other. Frege, however, would not want to say that these sentences have a different sense. Whoever understands these sentences should understand that they are synonymous, and therefore would be unable to accept one assertion while rejecting the other. Accurately formulated, Frege's criterion for a difference in sense therefore states that two sentences have a different sense if whoever understands them cannot accept one proposition while rejecting the other. As this formulation clearly shows, the epistemic aspect of Frege's criterion serves merely as an indication for the semantic relation between different sentences.

In the case under consideration, it is obvious that there is a possibility that a subject who understands both sentences will accept one proposition while rejecting the other. For, as the previous example clearly demonstrates, while the sentence "The meeting takes place at  $\varphi$ " may express a proposition which is true at all times, the sentence "The meeting is taking place now" only expresses a true propositions at the time of the meeting. In order to know that this sentence expresses a true proposition, further information is therefore required, according to which "now is  $\varphi$ ." This clearly shows that the two sentences do not have the same sense. It therefore follows that a sentence which includes an indexical expression does not have the same sense as a sentence which does not includes an indexical expressions.

---

<sup>16</sup> Frege, "On Sense and Reference," 56-57 [25-26].

Is it not possible, however, that in every case in which the subject believes that “The meeting takes place now” there is another sentence, which does not include an indexical expression, which expresses what the subject actually believes? According to this suggestion, a sentence which includes an indexical expression does not explicitly express the specific proposition which the subject actually believes. Thus, it might seem that although it is possible to believe that “The meeting takes place at  $\varphi$ ” without believing that “The meeting is taking place now,” in fact in each time a subject believes that “The meeting is taking place now” he actually believes a proposition which is expressed by a sentence of the type “The meeting takes place at  $\varphi$ .”

This suggestion, however, fails for the following reason: as shown by Perry, the subject's beliefs do not determine the reference of the indexical expressions he uses.<sup>17</sup> The indexical expression 'now' necessarily refers to the time in which it is used, while the subject's beliefs can be wrong and refer to another time. There is a possibility, therefore, that the subject believes both that “The meeting takes place at  $\varphi$ ” and that “The meeting is taking place now,” while one proposition is true and the other is false. This clearly shows that the proposition in which the subject believes, when he believes that “The meeting is taking place now,” is not identical with the proposition “The meeting takes place at  $\varphi$ .” The fact that the reference of indexical expressions is independent from the subject's beliefs reflects an essential feature of indexical expressions, which distinguishes them from demonstrative expressions, and precludes their reduction.

I should point out that this conclusion does not imply that indexical expressions are irreducible to other indexical expressions, but only that a complete reduction of indexical expressions is impossible. This conclusion implies that indexical expressions in general are necessary for describing reality, but it does not imply that each indexical expression is necessary for describing reality. This is due to the possibility of defining indexical expressions of certain type (for example, spatial indexical expressions) with the help of indexical expressions different type (for example, temporal indexical expressions).

The possibility of reducing some indexical expressions to other indexical expressions raises the question whether there is a basic indexical expression, with which it is possible to define every other indexical expression. An example for such a reduction was suggested by Reichenbach, who suggests defining all the indexical expressions with the help of the expression ‘this token.’<sup>18</sup> This expression

---

<sup>17</sup> Perry, “Frege on Demonstratives,” 486-88; Perry, “The Problem of the Essential Indexical,” 7-8.

<sup>18</sup> Hans Reichenbach, *Elements of Symbolic Logic* (New-York: The Free Press, 1947), 284.



is defined so that each of its tokens refers to itself. This implies that the expression 'this token' is an indexical expression, rather than a demonstrative expression, due to the fact that its reference is independent of the intention of the speaker, or an accompanying act of demonstration, and is determined exclusively by the circumstances of its use.<sup>19</sup> Reichenbach suggests that it is possible to define all the other indexical expressions with the help of this expression. For example, 'I' is defined as 'the person who utters this token,' 'now' is defined as 'the time at which this token is uttered,' and so on.

Reichenbach's suggestion raises several difficulties.<sup>20</sup> However, in the present context I wish to point out that Reichenbach's suggestion for the reduction of indexical expressions, and similar attempts, has no implication on the present discussion. What interests me is the possibility of the same proposition being both true and false in different circumstances. My aim is to examine the different indexical expressions in order to determine whether the different features they signify (space, time, and so on) can explain the possibility of the same proposition being both true and false in different circumstances. If Reichenbach's reduction of the indexical expressions is accepted, the question I am asking is simply translated into the question, what feature of tokens (that is, the identity of the subject, spatial position or temporal position) explains the possibility of the same proposition being both true and false in different circumstances; and if more than one feature can explain this possibility, which of these features is more fundamental. It therefore makes not difference for the present purpose whether there is a basic indexical expression, which can be used in order to define all the other indexical expressions.

The conclusion I reach is therefore that a complete reduction of indexical expressions is impossible. This conclusion implies that indexical expressions in general are necessary for describing reality, in the sense that descriptions which can be formulated by means of indexical expressions can not be formulated without the use of indexical expressions. This conclusion is significant for the

---

<sup>19</sup> In this respect, it is different from the expression 'this,' which Russell uses in an attempt to define all the indexical expressions, whose reference is determined by the attention of the subject (Bertrand Russell, *An Inquiry into Meaning and Truth* (London: George Allen & Unwin, 1940), 108). The expression 'this,' as used by Russell, is therefore a demonstrative expression, rather than an indexical expression.

<sup>20</sup> Reichenbach's suggestion can be criticized both on the ground that propositions which include indexical components do not seem to imply the existence of any tokens, and on the ground that this suggestion implies that these propositions are false unless expressed explicitly (see, for example, Richard M. Gale, *The Language of Time* (London: Routledge & Kegan Paul, 1968), 207).

present discussion in two different respects. Firstly, in this discussion I am trying to find a need for propositions which can be both true and false for describing reality. If indexical expressions were reducible to expressions which do not include them, the conclusion would follow that there is no need for propositions which can be both true and false for describing reality. Secondly, the conclusion that a complete reduction of indexical expressions is impossible implies, according to the criterion I devised earlier, that sentences which include indexical expressions express the same proposition in different circumstances.<sup>21</sup> This is an important step in explaining the possibility of the same proposition being both true and false.

I now turn to the different indexical expressions. First I examine whether each indexical expression actually allows the same proposition to be both true and false. For the present discussion only proves that indexical expressions fulfill one necessary condition for explaining the possibility of the same proposition being both true and false in different circumstances, but not that every indexical expression actually allows the same proposition to be both true and false in different circumstances. Second, I examine whether each indexical expression is necessary for describing reality, or whether it is possible to reduce some indexical expressions to other indexical expressions. Finally, I consider whether describing reality actually requires propositions to be both true and false.

#### 4.

The first indexical expression I examine is the first-person, that is, 'I.' The expression 'I' is an indexical expression, rather than a demonstrative expression, because its reference is independent of the speaker's intention or an accompanying act of demonstration. This is reflected by the fact that a subject who wakes up from a coma suffering from amnesia and says "I feel pain" successfully refers to himself.

How can the indexical expression 'I' enable the same proposition to be both true and false? This is possible only if this expression refers to different subjects. This is the case if the same sentence, for example, (2) "I live in New-York," is expressed by different subjects. Assume that I, who live in New-York, and Dan, who does not live in New-York, both express this sentence. Does this possibility explain the need of propositions which can be both true and false for describing

---

<sup>21</sup> As the analysis of the first-person in the next section shows, this conclusion should be restricted to sentences which are expressed by the same subject.

reality? That is, does describing this possibility require the same proposition to be both true and false?

In order to answer this question, we must first address the question of how to describe this possibility. Obviously, the proposition “It is true that ‘I live in New-York’ and false that ‘I live in New-York’” does not correctly describe this possibility, as evident from the fact that it is a straightforward contradiction. In trying to describe this possibility, it must be kept in mind that the reference of the indexical expression ‘I,’ and therefore the truth-value of the proposition which is expressed, is determined according to the identity of the person who utters this expression. The description of the possibility of two different subjects uttering the sentence (2) “I live in New-York” therefore depends on the point of view from which this possibility is described.

Let us consider the proposition Dan expressed. While considering the truth-value of this proposition, I cannot simply ask whether the sentence “I live in New-York” expresses a true proposition, for its truth-value is determined according to where I live, rather than where Dan lives. The sentence I hear Dan utters does not enable me to determine the truth-value of the proposition which he asserts. In order to determine the truth-value of this proposition, I must translate the sentence he utters.<sup>22</sup> In light of the fact that in order to determine the truth-value of the proposition which is asserted I must identify the person who utters the sentence “I live in New-York,” it seems that the correct way to translate the sentence I hear is by adding an expression which describes the person who utters this sentence. For example, a simple translation of the sentence Dan utters is “It is true in relation to Dan that ‘I live in New-York’.” Thus, by examining the truth-value of this sentence, I am able to determine the truth-value of the proposition Dan Asserts. This sentence, however, is synonymous with the sentence “Dan lives in New-York,” as evident from the fact that it is impossible for whoever understands them to accept one proposition while rejecting the other. This implies that I must use a proposition which is different from the proposition Dan expressed, in order to understand his assertion.<sup>23</sup>

---

<sup>22</sup> For a similar claim, see: Hector-Neri Castaneda, “‘He’: A Study in the Logic of Self-Consciousness,” *Ratio* 8 (1966): 145.

<sup>23</sup> Frege makes a related claim (although for different reasons), according to which a first-person thought of any subject cannot be thought by any other subject (Frege, “Logical Investigations: Thoughts,” 358-59 [65-66]). I should point out that Perry's criticism on this conclusion is mainly directed against its coherence in the confines of Frege's conception of language, and especially in light of Frege's conception of sense, and therefore is irrelevant for the present discussion (Perry, “Frege on Demonstratives,” 488-91). For criticism of Perry and his interpretation of Frege's conception of sense, see: Evans, “Understanding Demonstratives,” 88-91.

I should point out that the synonymy of the sentences “It is true in relation to Dan that ‘I live in New-York’” and “Dan lives in New-York” does not contradict the conclusion of the previous section, according to which indexical expressions are irreducible to expressions which do not include indexical expressions. For the expression ‘I,’ in the sentence “It is true in relation to Dan that ‘I live in New-York’,” does not function as an indexical expression. In fact, the synonymy of the sentences “It is true in relation to Dan that ‘I live in New-York’” and “Dan lives in New-York” indicates that the expression ‘I’ does not function as an indexical expression in the sentence “It is true in relation to Dan that ‘I live in New-York’.” This is evident from the fact that, in contrast to the function of the indexical expression ‘I,’ this expression does not refer to the subject who utters it, and is altogether independent from the circumstances of its use. The expression ‘I’ functions in this sentence as a variable, which stands in place of the expression ‘Dan,’ which precedes it.

Turning back to the description of the situation in which two subjects utter the sentence “I live in New-York,” it is now clear that this possibility is described differently from different points of view. From my point of view, this possibility is described as “It is true that ‘I live in New-York’ and false in relation to Dan that ‘I live in New-York’,” or simply “It is true that ‘I live in New-York’ and false that ‘Dan lives in New-York’.” The last formulation is especially important, because it makes it clear that describing this situation does not require the same proposition, that is, “I live in New-York,” to be both true and false. In fact, even if in my conceptual scheme the proposition “I live in New-York” had been a necessary truth, this description would have been consistent in my conceptual scheme. Furthermore, it is clear that describing this possibility, from any point of view, does not require the same proposition to be both true and false. For the indexical expression ‘I’ refers to different subjects only when expressed from different points of view, while describing this possibility requires choosing a particular point of view from which it is described (including the point of view from nowhere). It can therefore be concluded that the indexical expression ‘I’ does not enable the same proposition to receive different truth-values, and therefore cannot explain why contingent propositions are needed for describing reality.

## 5.

In this section I turn to the indexical expression ‘here.’ The reason I focus on this spatial indexical expression is that it is generally agreed that the spatial indexical expressions do not signify any objective features of reality, but merely a relation to the subject who utters them. This implies that the spatial indexical expression

'here,' which refers to the spatial position of the subject, is the basic spatial indexical expression, which can be used to define all the other spatial indexical expressions.

Consider sentence (3), "Dan lives here," which I remind you should be understood as tenseless, that is, as "Dan lived, lives, or will live here."<sup>24</sup> In light of the fact that the spatial indexical expression 'here' merely refers to the spatial position of the subject who utters this expression, and does not signify an objective feature of reality, this sentence must be uttered in different locations in order to express propositions whose truth-values differ. A change in the truth-value of the proposition expressed by this sentence therefore indicates a change in the location of the subject who utters this sentence.<sup>25</sup> For example, suppose that the subject first utters this sentence where Dan does not live, for example, in New-York, and latter utters this sentence where Dan lives. This possibility is described (where Dan lives) by the following proposition:

(3a). It is true that "Dan lives here," but it was false (in New-York) that "Dan lives here."

Proposition (3a) describes the change in the truth-value of the proposition "Dan lives here." This proposition implies that the proposition "Dan lives here" was false in the past, and that it is now true. Notice that the second conjunct in sentence (3a), that is, "it was false (in New-York) that 'Dan lives here,'" is not synonymous with the sentence "it was false that 'Dan lives in New-York.'" That is, sentence (3a) is not synonymous with sentence (3b):

(3b). It is true that "Dan lives here," but it was false that "Dan lives in New-York."

For although proposition (3a) implies proposition (3b), the contrary does not hold. This is due to the fact that the latter proposition does not imply that the subject was ever in New-York, while the former proposition does imply that the subject was in New-York in the past.<sup>26</sup> This implies that the expression 'here,' in the sentence "it was false (in New-York) that 'Dan lives here,'" does function as an indexical expression, and is essential to the description of this possibility (in

---

<sup>24</sup> This lets me focus on the spatial indexical component of this sentence.

<sup>25</sup> The possibility of this sentence being expressed by different subjects is dealt with in the previous section.

<sup>26</sup> In fact, the former proposition implies that any subject, rather than the subject who utters this sentence, was in New-York. However, in light of the conclusions of the previous section, I ignore the possibility of different subjects who utter the sentence "Dan lives here."

contrast to the expression 'I' in the sentence "It is true in relation to Dan that 'I live in New-York'").

Proposition (3a) therefore not only assumes that the proposition "Dan lives here" can be both true and false, but that this proposition was actually false in the past and is actually true now. If the proposition "Dan lives here" could not have been both true and false, that is, if this proposition would not have been a contingent proposition, proposition (3a) would have been a contradiction. It can therefore be concluded that the possibility described by proposition (3a) could only have been described if the same proposition could be both true and false. Thus, this possibility explains why contingent propositions are needed for describing reality.

However, before it can be concluded that the spatial indexical expression 'here' holds the key to the need for contingent propositions, one more issue needs to be addressed. As I previously explained, proposition (3a) assumes a change in time. That is, it supposes that the sentence "Dan lives here" was expressed by the same subject at two different locations, and this is possible only if the subject changed its position in time. This raises the suspicion that it is the temporal component of this proposition which explains its possibility to be both true and false in different circumstances. Furthermore, this dependence is general, and is not limited to sentence (3a). The possibility of the same proposition, which includes a spatial indexical component, being both true and false in different circumstances assumes a change in time. This is due to the fact that a spatial indexical expression, for example, 'here,' cannot refer to different locations at the same time while being used by the same subject.<sup>27</sup> Thus, any difference in the reference of a spatial indexical expression (used by the same subject) assumes a change in time.

It might be objected that a difference in the reference of the spatial indexical expression 'here,' as used by one subject, does not assume a change in time. Gale, for example, suggests that someone can simultaneously utter two different tokens of 'here,' which refer to different places, by holding up cards with 'here' inscribed on them, one in each hand.<sup>28</sup> This suggestion, however, confuses the use of 'here' as a demonstrative expression and its use as an indexical expression. As a demonstrative expression, the word 'here' can refer to different places simultaneously, depending on the intention of the subject or the act of demonstration which accompanies its expression. However, as an indexical

---

<sup>27</sup> Again, the present discussion is limited to the case in which only one subject utters the same sentence.

<sup>28</sup> Richard M. Gale, "'Here' and 'Now,'" *Monist* 53 (1969): 407.

expression, which is the use of this expression which is currently under consideration, the word 'here' cannot denote different places simultaneously, and refers exclusively to the location of the subject who utters this expression.

It can therefore be concluded that any difference in the reference of a spatial indexical expression assumes a change in time. This implies that it is the temporal component of proposition (3a) which explains the possibility of the same proposition being both true and false in different circumstances. I should mention that the conclusion of section 3 is that a complete reduction of indexical expressions is impossible, but not that indexical expressions cannot be defined with the help of other indexical expressions. This is the case with the spatial indexical expression 'here,' which can be defined with the help of the temporal indexical expression 'now' (and the first-person), as: 'the location I am in now.' Notice that it is impossible to use the spatial indexical expression 'here' in order to define the temporal indexical expression 'now.' The expression 'now' is not synonymous with 'the time I am here,' because I can be in the same location at different times.<sup>29</sup> This implies that the temporal indexical expression 'now' is more basic than the spatial indexical expression 'here.'

Furthermore, not only can the spatial indexical expression 'here' be defined with the use of the temporal indexical expression 'now,' it can be shown that the spatial indexical 'here' *assumes* the temporal indexical 'now.' One might have thought that though the spatial indexical expression 'here' can be reduced to the temporal indexical expression 'now,' this possibility is not available in conceptual schemes which do not include the temporal indexical expression 'now.' It can be proved, however, that the spatial indexical expression 'here' implies the temporal indexical expression 'now,' and therefore any conceptual scheme which includes the former expression must also include the latter expression: To begin with, it should be noted that the spatial indexical 'here' must include a temporal determination. For the subject is located in different places at different times, while the spatial indexical 'here' refers to a unique position in space, that is, the current location of the subject. This implies that the spatial indexical 'here' includes a temporal determination. Additionally, the temporal determination

---

<sup>29</sup> This marks an important disanalogy between time and space. This disanalogy follows from the fact that any difference in the reference of indexical expressions, whether temporal or spatial, assumes that they are uttered at different times, but not that they are uttered in different places (assuming they are uttered by the same subject). This disanalogy was recognized before in different terms by several philosophers, for example, see Clyde L. Hardin, "Thank Goodness It's Over There!," *Philosophy* 59 (1984): 122; David H. Mellor, *Real Time II* (London: Routledge, 1998), 95-96; and Yuval Dolev, "Space and Time: Some (dis)Analogies," *Iyyun* 49 (2000): 70.

which is included in the spatial indexical 'here' must be a temporal indexical (that is, 'now'). For, any other possibility would imply the possibility of reducing the spatial indexical expression 'here' to an expression which does not include any indexical expressions. As section 3 proves, however, this is impossible. It can therefore be concluded that the spatial indexical 'here' not only can be reduced to, but actually assumes, the temporal indexical 'now.'

The conclusion of this section is therefore that the spatial indexical expression 'here' does enable the same proposition to be both true and false in different circumstances. However, my analysis shows that the spatial indexical 'here' assumes, and can be reduced to, the temporal indexical 'now.' This implies that the explanation of how the same proposition can be both true and false in different circumstances is explained by the temporal indexical component of this proposition, rather than its spatial component. This conclusion leads me to the examination of the temporal indexical expressions.

## 6.

The first question that should be addressed, in light of the wide selection of indexical expressions available (for example, past, present (now), future, yesterday, tomorrow and so on), is which of these expressions, if any, is the basic temporal indexical expression. The answer is that the temporal indexical expression 'now' (or 'present') is the basic temporal indexical expression, which is necessarily included in any conceptual scheme that includes temporal indexical expressions. This is evident from the fact that propositions which include a temporal indexical component describe reality from a point of view which is located at the present (that is, 'now'). This claim is proved by the following consideration: For every sentence *p*, which includes a temporal indexical expression, adding the prefix 'now' results in a proposition which has the same truth-value as the original proposition. For example, "I was in New-York yesterday" has the same truth-value as "Now (it is true that) 'I was at New-York yesterday'."<sup>30</sup> This implies that temporal indexical expressions assume the existence of a unique position in time, denoted by the indexical expression 'now,' in relation to which their reference is determined. It therefore follows that every conceptual scheme that includes temporal indexical expressions must include the temporal indexical 'now' (or 'present'). In light of this conclusion, I concentrate in what follows on the temporal indexical expression 'now.'

---

<sup>30</sup> In contrast, for example, to the proposition "Yesterday (it was true that) 'I was at New-York yesterday'."



Consider sentence (4): “There is no university in New-York now.” Its suggestion that the same proposition can be both true and false at different times is expressed, for example, by the following sentence:

(4a). It is false that “There is no university in New-York now,” but in 1492 it was true that “There is no university in New-York now.”

Proposition (4a) describes reality from a point in time (that is, now) in which there is a university in New-York, but it claims that in the past (that is, in 1492) the proposition “There is no university in New-York now” was true. Proposition (4a) therefore not only assumes the possibility of the same proposition being both true and false in different circumstances, but actually implies that the same proposition, that is, “There is no university in New-York now” has different truth-values at different times.

The analysis of the temporal indexical expressions raises a complication which does not exist in the case of spatial indexical expressions. For while it is generally agreed that spatial indexical expressions are subjective, in the sense that their reference is determined in relation to the position of the subject, rather than by an objective feature of reality, the same does not hold with regard to the temporal indexical expressions. The status of the temporal indexical expressions is under controversy. According to supporters of the B-theory of time (the detensers), the temporal indexical expressions are analogical to the spatial indexical expressions, and similarly their reference is determined in relation to the time in which they are used by the subject. According to the supporters of the A-theory of time (the tensers), on the other hand, the temporal indexical expressions signify objective features of reality, and the change in the A-determinations of past, present, and future is an essential feature of time, which explains why time (rather than space) is the dimension of change. This controversy has significant implications. However, as I explain next, it is irrelevant for the present discussion.

According to the B-theory of time, which holds that the spatial indexical expressions are analogical to the temporal indexical expressions, proposition (4a) not only claims that in 1492 there was no university in New-York, but also that the subject who utters that sentence was present at that time.<sup>31</sup> For according to this conception of time, being ‘now’ is not an objective feature of reality, but merely a relation of simultaneity to the utterance of the temporal indexical

---

<sup>31</sup> There may have been other subjects at that time. However, I remind you that, in light of the analysis of the first-person, I am currently limiting the discussion to the case in which the same subject utters the sentence “There is no university in New-York now.”

expression 'now' by the subject. This is the reason why sentence (4a) is not synonymous with sentence (4b):

(4b). It is false that "There is no university in New-York now," but true that "There was no university in New-York at 1492."

For although proposition (4a) implies proposition (4b), the contrary does not hold: It is possible both that there was no university in New-York in 1492, and that the proposition "There is no university in New-York now" was never true – simply because the subject who utters this sentence never existed at the time in which there was no university in New-York. Thus, the fact that sentences (4a) and (4b) are not synonymous implies that describing this possibility necessitates the same proposition to actually be both true and false at different times.

According to the A-theory of time, on the other hand, sentences (4a) and (4b) are synonymous. This may give rise to the claim that describing this possibility does not require the same proposition to be both true and false. For proposition (4b) seems to show that, in order to describe the possibility described by proposition (4a), there is no need in the same proposition being both true and false. However, according to the A-theory of time, sentence (4a) reflects the correct analysis of proposition (4b). For, according to this conception of time, the change in the temporal A-determinations of past, present (now), and future is essential for time. This conception of time therefore implies that the proposition "There is no university in New-York now," which is now false, was true in the past.

It can thus be concluded that the need for propositions which are both true and false in different circumstances, and therefore the need for contingent propositions in describing reality, is found in describing the change in the A-determinations of past, present, and future. As I have explained, it makes no difference whether the temporal A-determinations are objective, or whether they are subjective. Even in the latter case, in which the change in the temporal A-determinations is merely the result of describing reality from a subjective point of view, describing this change still requires the use of contingent propositions.

## 7.

The previous analysis has revealed that the one and only feature of reality whose description requires the same proposition to be both true and false is the change in the temporal A-determinations. This feature of reality can only be described by the use of propositions which include temporal indexical expressions, which are both true and false at different times. As I explained, this conclusion is independent of the question whether the temporal A-determinations signify an

objective feature of reality, or whether they are merely subjective, and merely describe a relation to the subject.

In section 2 I argue that the need for contingent propositions for describing reality can be explained only by the need for propositions which can actually be both true and false. It can therefore be concluded that the need for contingent propositions in describing reality is explained by the change in the temporal A-determinations. Thus, although not every contingent proposition in language is tensed, my conclusion I reach implies, in accordance with what I suggest in section 2, that contingent propositions whose truth-value is absolute are defined with the help of propositions which include a temporal indexical component.

The conclusion of this article is that the change in the temporal A-determinations explains the need for contingent propositions for describing reality. This answers the question which I introduced at the beginning of the article, regarding the explanation of the difference between the different fields of discourse, the contingent and the necessary. My conclusion suggests that the explanation for why contingent propositions are needed for describing the physical reality, and are absent in mathematics and logic, lies in time, and more specifically, in the change in the temporal A-determinations.



# DEBATE



# THE CONCILIATORY VIEW AND THE CHARGE OF WHOLESALE SKEPTICISM

Christopher BOBIER

ABSTRACT: If I reasonably think that you and I enjoy the same evidence as well as virtues and vices, then we are epistemic peers. What does rationality require of us should we disagree? According to the conciliatory view, I should become less confident in my belief upon finding out that you, whom I take to be my peer, disagree with me. Question: Does the conciliatory view lead to wholesale skepticism regarding areas of life where disagreement is rampant? After all, people focusing on the same arguments and possessing the same virtues commonly disagree over religion, politics, ethics, philosophy and other areas. David Christensen and Adam Elga have responded that conciliationism *does not* lead to wholesale skepticism. I argue that Christensen and Elga cannot avoid the charge of wholesale skepticism. But I also argue that if they could avoid skepticism, then the conciliatory view would become irrelevant since it would not inform us as to what rationality requires of us in every-day disagreement. Thus either way the conciliatory view is saddled with unintuitive consequences.

KEYWORDS: epistemology, peer-disagreement, conciliatory view, skepticism, David Christensen, Adam Elga

## I. Introduction

Let us say that you are my epistemic peer regarding the truth-value of  $P$  if I reasonably think that you possess the same evidence and the same epistemic virtues and vices that I do. Imagine that after considering the evidence I affirm *that  $P$  is true*, while you affirm *that  $P$  is not true*. This is a case of peer disagreement, and it raises the following question: What is rationally required of me when my epistemic peer disagrees with me and there is no *obvious* and relevant asymmetry between us? Answer: I should become less confident in my belief upon finding out that you, whom I take to be my epistemic peer, disagree with me. This is the *Conciliatory View*, and it maintains that in cases of peer disagreement each party should adjust his or her credence level to bring it closer to the credence level of the other party.<sup>1</sup> Here are three statements from proponents of the conciliatory view:

---

<sup>1</sup> Graham Oppy, "Disagreement," *International Journal for Philosophy of Religion* 68 (2010): 189.

Christopher Bobier

Adam Elga: [O]ne should give the same weight to one's own assessments as one gives to the assessments of those one counts as one's epistemic peer.<sup>2</sup>

David Christensen: I should change my degree of confidence significantly toward that of my friend (and similarly, she should change hers toward mine).<sup>3</sup>

Richard Feldman: In situations of full disclosure, where there are not evident asymmetries, the parties to the disagreement would be reasonable in suspending judgment on the matter at hand.<sup>4</sup>

All proponents of the conciliatory view agree that in light of peer disagreement belief revision is called for.

However, it *seems* that the conciliatory view entails wholesale skepticism regarding important areas of life where disagreement is rampant, such as religion, morality, politics, and ethics. Take abortion for example: There are people on both sides of the abortion debate who are aware of the same arguments and counter-arguments, and who appear to share the same cognitive and moral virtues and vices. If the conciliatory view is correct, then it would seem that the proponents on either side of the abortion debate should either suspend judgment (Feldman) or split the difference with each other (Elga and Christensen); remaining steadfast would be irrational. This example can be adapted to almost any area of our life where intelligent and virtuous people disagree, and thus skepticism is called for regarding many (if not most) of our beliefs. Adam Elga nicely summarizes the worry:

[Y]our friends take a range of stances on some basic political or ethical claim. By your lights, these friends are just as thoughtful, well-informed...and intellectually honest as you. Still, it seems obviously wrong that you are thereby required to suspend judgment on the claim... To require this would be to require you to suspend of judgment on almost everything.<sup>5</sup>

Now any account of peer disagreement that renders much of what we believe irrational or such that we cannot rationally believe it incurs (to put it mildly) a heavy intuitive burden; many are inclined to think that *disagreement alone* should not issue such skeptical conclusions. I find this charge of wholesale

---

<sup>2</sup> Adam Elga, "Reflection and Disagreement," *Nous* 41, 3 (2007): 484.

<sup>3</sup> David Christensen, "Epistemology of Disagreement: The Good News," *Philosophical Review* 116, 2 (2007): 189.

<sup>4</sup> Richard Feldman, "Epistemological Puzzles about Disagreement", in *Epistemology Futures*, ed. Stephen Hetherington (Oxford: Oxford University Press, 2006), 235.

<sup>5</sup> Elga, "Reflection and Disagreement," 492.



skepticism particularly problematic for conciliationists and will argue that both Elga's and Christensen's recent responses fail to alleviate the skeptical worries.

## II. Elga

Conciliationism applies to cases of 'peer' disagreement and if the disputants in the cases of political, ethical, and religious disagreement are *not* epistemic peers then they are not obliged to be conciliatory. This is Elga's response. He claims that, "In the messy cases, one's reasoning about the disputed issue is tangled up with one's reasoning about many other matters. As a result, in real-world cases one tends not to count one's dissenting associates... as epistemic peers."<sup>6</sup> He asks us to consider Ann and Beth who disagree over the moral permissibility of abortion. Setting aside their position on the abortion debate, does Ann think that Beth is just as likely as herself to arrive at the right answer regarding abortion? Answer: no. This is because Ann and Beth disagree over many abortion-related issues and when Ann reflects on the likelihood of Beth being right about abortion, she is going to recall all of their points of disagreement. She is going to reflect on Beth's answer to the question of God's existence, the nature of human persons, the question of values and so on, all of which she disagreed with. Since Beth holds to, from Ann's viewpoint, wrong answers regarding these abortion-related issues, Ann is not going to think that Beth is likely to get the abortion question right. Since Ann thinks that Beth is not as likely to get the abortion question right, she is not going to consider her to be her epistemic peer.

Unfortunately for Elga, this response does not hold promise. Assume that Ann realizes that she and Beth disagree over a wide swath of issues related to abortion: the nature of a human person, the status of values, the existence of God, etc. According to Elga, since Ann thinks that Beth is wrong on all of *these* issues, Ann can reason that Beth is not as likely as herself to be right about abortion. But, what if Ann and Beth were to discuss these abortion related issues? That is, what if Ann and Beth were to discuss their reasons for their respective positions regarding the abortion-related issue of the existence of God (assuming for now that it is an abortion-related issue). If Elga's response works in this case as it did in the abortion case, then Ann can recall that from her perspective Beth is wrong about many related issues (including abortion) and is thus less likely to be right about the existence of God. But here is the problem: Ann downgraded Beth's chances of being right about abortion because she thought she was wrong regarding the existence of God. Now she is downgrading Beth's chances of being right regarding

---

<sup>6</sup> Elga, "Reflection and Disagreement," 492.

the existence of God because she thought that she was wrong regarding abortion. But how is this not a question-begging dismissal on Ann's part? After all, if I disregard your testimony regarding X because I think that you are wrong about Y, it does not seem appropriate for me to discount your testimony regarding Y because I think that you are wrong about X. After all, my reason for thinking that you are wrong about X is that I think that you are wrong about Y! This amounts to me disregarding your testimony regarding Y because I think that you are wrong about Y, which is just to beg the question.

Elga could argue that Ann's discounting of Beth as an epistemic peer regarding the existence of God relies on Beth's stance on 'existence-of-God related' issues and that abortion is not such an issue; thus, Ann's dismissal of Beth's disagreement is not question-begging. Such existence-of-God related issues would include religious epistemology, arguments for God's existence, arguments against God's existence and so forth, and it is Beth's stances on *these* issues that are at issue when Ann discounts her status as a peer. Unfortunately, this response does not appear to work for all cases of real-world disagreement. Imagine that Beth and Ann disagree over the soundness of the Leibnizian cosmological argument. After discussion, they realize that Ann does not think that Hume's criticism of the principle of sufficient reason is successful, whereas Beth disagrees. Does Elga's response work? It is hard to think of related issues that they could disagree about and that would serve Ann's ability to undermine Beth's status as a peer. But more importantly, even if there are related issues, what if Ann and Beth never discussed them? That is, what if they focus solely on the arguments for and against the cosmological argument and disregard everything else? In this case, could Ann take the liberty to assume that she and Beth disagree about related issues and is therefore unlikely to be correct? This is doubtful since first, it is unclear that disagreement over one issue entails disagreement over related issues; second, this would lead to instances of improper self-trust along the following lines: I know that you disagree with me over issue X and so I assume that we disagree over other related issues; thus you are not as likely as I to be right.

But if Ann and Beth have not discussed issues related to the cosmological argument *and* Ann cannot assume that she and Beth disagree over related issues, then there is no independent grounds for Ann to downgrade Beth from being an epistemic peer; and if there is no independent ground for downgrading Beth from being an epistemic peer, then it would seem that Ann and Beth should become conciliatory regarding the cosmological argument. But, once they become conciliatory regarding this argument, it follows that they could, in principle, become conciliatory regarding other arguments for and against God's existence;

and once they become conciliatory regarding all of the arguments for and against God's existence, there is every reason for thinking that they should become conciliatory regarding God's existence. After all, what God-related issue is there that they would disagree about and give grounds for one to downgrade the other from the status of a peer? Thus, it would seem that Ann and Beth ought to become conciliatory regarding God's existence. Now, this same argument generalizes to other fields where disagreement is rampant. For example, if Ann and Beth focus on the individual arguments for and against abortion, eventually, they can come to a point where they do not disagree over abortion-related issues; in such a case, they ought to become conciliatory regarding abortion. Thus, we see that Elga's response leaves the door wide open for skepticism in every area.

So Elga's response, instead of mitigating wholesale skepticism, entails either that the question-begging dismissal of another's disagreement is permissible or leads to wholesale skepticism. Neither option is desirable. But perhaps the most important objection to Elga's response is that it appears as though Ann would be able to tell whether or not Beth is a reliable person with the same evidence and virtues regarding abortion regardless of her stance on related issues. As Christensen himself points out, Ann could still know that Beth has thought about the same arguments as her and displays the same virtues regarding abortion.<sup>7</sup> That Ann can tell whether or not Beth possess the same evidence and virtues appears to generate the problem of peer disagreement and it is beside the point as to whether or not Ann knows that Beth and her disagree over related issues. For these reasons, Elga's response is found lacking.

### III. Christensen

Christensen argues in a similar vein that the skeptical implications of conciliationism can be minimized by denying peerhood to many of the disputants of every day matters. He writes:

It's worth pointing out, however, that with respect to many of my beliefs, I do have good reason to think that I'm in an especially good epistemic position. For some beliefs, I have more evidence than the average person, and for others, I've thought more carefully... It's often hard to tell, for example, how hard another person has thought about a given matter, or whether they're tired or distracted [whereas I can rule these out for me]... So although the epistemic importance of disagreement extends far beyond cases of disagreement by epistemic peers, I will often have solid, perfectly impartial reasons for thinking that particular

---

<sup>7</sup> David Christensen, "Disagreement, Question-Begging and Epistemic Self-Criticism," *Philosophers' Imprint* 11, 6 (2011): 16.

disagreements are more likely to be explained in a way that favor's my belief's accuracy.<sup>8</sup>

Christensen's response allows for the denial of peerhood along the following lines: I may know that I have thought about abortion for a long time and in detail but I do not know the same about you; for this reason I do not consider you to be as reliable as myself and thus, not my epistemic peer. Yet, it is unclear how this response precludes instances of improper self-trust. Imagine that Ann is extremely prideful regarding her stance on abortion and that she significantly overestimates her epistemic position regarding abortion. When she learns of Beth's disagreement she reasons, independently of the issue, that Beth must not have thought hard enough on the issue or gathered as much evidence as herself. Since Beth is not as likely as herself to be correct, she disregards Beth as being an epistemic peer. This problem becomes more poignant when we notice that conciliatonists often claim that a virtue of their account is that it *precludes* question-begging dismissals of others; Christensen says that the conciliationist motivation is to "prevent blatantly question-begging dismissals of the evidence provided by the disagreement of others."<sup>9</sup> While Ann does not reason that "Since I am right, Beth is wrong", she does reason along similar lines. She, in her pride, reasons: "Regarding abortion, I am in a great epistemic position and it is unlikely that Beth is in as good of a position as I. Therefore, she is not as likely as I am to be correct." Such perverse reasoning is no different than assuming that the other person is wrong, which is to beg the question.

But perhaps the most important objection is that Christensen's response does not appear to minimize the skeptical implications of the conciliatory view. One philosopher discussing a topic with another, in many cases, has no independent reason for thinking that she has thought more carefully or has more evidence than the other. The same goes for religion, politics, ethics, and other such domains. This becomes especially obvious when Christensen claims that the conciliatory view is committed to the following principle:

Insofar as the dispute-independent evaluation *gives* me good reason to be confident that the other person is equally well-informed, and equally likely to have reasoned from the evidence correctly, I must revise my belief in the direction of the other person's.<sup>10</sup>

---

<sup>8</sup> Christensen, "Epistemology of Disagreement," 36.

<sup>9</sup> Christensen, "Disagreement, Question-Begging," 2.

<sup>10</sup> Christensen, "Disagreement, Question-Begging," 15.

In many cases, we can tell that another person is equally well-informed and virtuous as ourselves. Take as an example Alvin Plantinga and David Lewis. As is well known, these two men disagree sharply over the status of properties, universals, possible worlds, God's existence, epistemology and much more. Are we to conclude that they have different evidence and/or virtues and vices? To many this will seem doubtful. Are we to believe that Lewis and Plantinga read different articles or that one possesses some epistemic virtue or vice that the other lacks? Could Plantinga have doubted that Lewis had thought just as hard as he did about modality? Certainly not. Could Lewis have reasoned as follows: "I know that when I wrote about modality I was not tired. I knew that I was alert, perceptive and intentional about focusing. But I do not know that these things are true about Plantinga. Therefore, I have reason to think that Plantinga is not as likely to be correct about modality as myself.?" Again, certainly not. The proper answer seems to be that both Lewis and Plantinga are evidentially and intellectually on par, and as Christensen says, "When those beliefs [about the other] include extensive dispute-independent evidence of intellectual and evidential parity..., the undermining power of disagreement is high."<sup>11</sup> It follows then that Plantinga and Lewis, insofar as they stick to their guns in light of their disagreement, are being irrational.<sup>12</sup> We can fit this example to other areas of politics, religion and morality and thus, Christensen's response does not mitigate the wholesale skepticism.

#### IV. The Irrelevance of the Conciliatory View

I have pointed out that the conciliatory view *can* avoid the skeptical implications if it can be denied that the persons disagreeing in the areas of philosophy, politics, religion and morality (among others) are peers. I have shown that both Christensen and Elga's attempts along this route are highly problematic. But setting my criticisms aside, let us assume for the moment that they are correct and that persons disagreeing in these areas are *not* epistemic peers. If this were the case, then the conciliatory view does not cover disagreement in these real-life areas and wholesale skepticism would be avoided. But if this is so, this raises a problem for conciliationists: while they may have avoided wholesale skepticism,

---

<sup>11</sup> Christensen, "Disagreement, Question-Begging," 16.

<sup>12</sup> It may be objected that since Plantinga and Lewis disagree over practically everything that they write, they do not have dispute independent evidence of epistemic peerhood. However, they can both come to know that they have the same evidence by looking at the others' list of references and they can know that they have the same virtues, such as thoroughness, courage, etc. just by reading the others' work.

they have rendered their view largely irrelevant. This is because disagreement is interesting *precisely because it is a pervasive part of our communal life*. Given its pervasiveness, we want to know what rationality requires of us, and the conciliatory view tells us nothing. Historically the interest in peer disagreement arose out of debates concerning religious diversity. Philosophers were trying to determine whether or not religious disagreement served as an undermining defeater for one's properly basic belief in God.<sup>13</sup> This naturally expanded to disagreement in other areas and in order to focus attention, philosophers narrowed in on the notion of 'epistemic peerhood.' The question became, what does rationality require in cases of 'peer disagreement'? This change in focus was intended to clarify the questions surrounding disagreement in general and it was hoped (and assumed) that an answer to 'peer disagreement' would generalize to real-life disagreement.<sup>14</sup> But as we see, if conciliationists avoid wholesale skepticism, this is because their account does not generalize to real-life cases of disagreement and thus their account becomes irrelevant to the questions that initially gave rise to the literature.

Conciliationists could challenge the overarching assumption that an account of what rationality requires in cases of 'peer disagreement' would generalize to cases of real-life disagreement. But such would be a hollow victory since peer disagreement is highly idealized and divorced from our social lives. We are left with the original questions that gave rise to the literature (religious, political and ethical disagreement) unanswered and without any indication of an answer; all conciliationists can say is that many cases of real-life disagreement are not cases of peer disagreement and therefore conciliationism is not called for. We are left in the dark as to what rationality requires in these real-life cases of disagreement! Thus, even if Elga and Christensen are correct in claiming that the conciliatory view does not entail wholesale skepticism, it follows that their view becomes uninteresting and irrelevant to real-life.

---

<sup>13</sup> In response to Alvin Plantinga and Nicholas Wolterstorff co-edited book, *Faith and Rationality* (Notre Dame: University of Notre Dame Press, 1983), and Alvin Plantinga, "Is Belief in God Properly Basic?," *Nous* 15, 1 (1981): 41-51, Phillip Quinn raised the problem of religious disagreement in "On Finding the Foundations of Theism," *Faith and Philosophy* 2, 4 (1985): 469-486.

<sup>14</sup> Richard Feldman applies his conciliatory view to religious disagreement in "Reasonable Religious Disagreements" in *Philosophers Without Gods: Meditations on Atheism and the Secular*, ed. Louise Antony (Oxford: Oxford University Press, 2007): 194-214.

## V. Conclusion

Either the conciliatory view leads to wholesale skepticism regarding politics, religion, philosophy and other areas, or it does not. If it does, then this is certainly an intuitive burden for the view, since it seems obvious to many that there can be rational disagreement in these areas.<sup>15</sup> For most, this skepticism will be too high of a price to pay for a theory. Thus, it is not surprising that defenders of the conciliatory view try to deny or mitigate the skepticism. I have argued that Elga and Christensen's recent attempts to dissolve the skeptical worry fail. But, I have also argued that *if* they had succeeded, then they would have undermined the motivation for their view in the first place. Disagreement in religion, politics, morality and philosophy are what we are seeking an account of, and if Elga and Christensen are correct, the conciliatory view would have nothing to say. Thus, I conclude that conciliationism either entails wholesale skepticism or is uninteresting to real life disagreement. Either is unpalatable.

---

<sup>15</sup> See Peter Van Inwagen, "It is Wrong, Everywhere, Always, and for Anyone, to Believe Anything upon Insufficient Evidence," in *Philosophy of Religion: the Big Questions*, eds. Eleonore Stump and Michael J. Murray (New York: Blackwell, 1999): 273-284.





# EPISTEMIC DISPOSITIONS. REPLY TO TURRI AND BRONNER

Rachael BRIGGS, Daniel NOLAN

**ABSTRACT:** We reply to recent papers by John Turri and Ben Bronner, who criticise the dispositionalised Nozickian tracking account we discuss in “Mad, Bad and Dangerous to Know.” We argue that the account we suggested can handle the problems raised by Turri and Bronner. In the course of responding to Turri and Bronner’s objections, we draw three general lessons for theories of epistemic dispositions: that epistemic dispositions are to some extent extrinsic, that epistemic dispositions can have manifestation conditions concerning circumstances where their bearers fail to exist, and that contrast is relevant to disposition attributions.

**KEYWORDS:** epistemology, dispositions, tracking theory

In a recent paper,<sup>1</sup> we suggested that advocates of a Nozickian tracking theory of knowledge might do well to appeal to dispositions rather than counterfactuals. (Lars Gundersen makes a similar suggestion,<sup>2</sup> though he prefers a dispositional account of counterfactuals that enables him to retain a conditional tracking analysis.) John Turri<sup>3</sup> and Ben Bronner<sup>4</sup> have offered a series of purported counterexamples to the dispositionalised Nozickian view we suggest.

We question whether the Turri and Bronner cases are genuine counterexamples. Instead, we claim, the cases reveal a number of interesting choice points for theories of epistemic dispositions. We think the right choices at these choice points allow the dispositional Nozickian to hold to the conditions proposed in our earlier paper, though we will also indicate how a dispositional tracking account might be modified to accommodate alternative choices. Even if some dispositional tracking theorists have reason to reject the letter of our original account, we doubt that Turri and Bronner have demonstrated anything seriously amiss with its spirit.

---

<sup>1</sup> Rachael Briggs and Daniel Nolan, “Mad, Bad and Dangerous to Know,” *Analysis* 72, 2 (2012): 314-316.

<sup>2</sup> Lars Gundersen, *Dispositional Theories of Knowledge* (Farnham: Ashgate, 2003) and Lars Gundersen, “Tracking, Epistemic Dispositions and the Conditional Analysis,” *Erkenntnis* 72 (2010): 353-364.

<sup>3</sup> John Turri, “Stumbling in Nozick’s Tracks,” *Logos & Episteme* 3, 2 (2012): 291-293.

<sup>4</sup> Ben Bronner, “Problems With the Dispositional Tracking Theory of Knowledge,” *Logos & Episteme* 3, 3 (2012): 505-507.

The significance of what we say here extends beyond dispositional tracking accounts. A number of the issues we raise here involve general theses about dispositions and disposition ascriptions that are controversial in the wider literature on dispositions, especially our suggestion in section 2 that disposition ascriptions are context-sensitive.

Dispositions also matter in a wide range of epistemological settings. Virtue epistemologists claim that knowledge and justification are grounded in the virtues or characters of epistemic inquirers, which seem to be psychological dispositions.<sup>5</sup> Other theorists justify norms of belief updating by considering which epistemic dispositions would be preferred by rational agents.<sup>6</sup> Finally, it is valuable in its own right to investigate which epistemic dispositions of agents are worth having and cultivating. Just like other entities that have drawn the attention of epistemologists – mental states, processes of inquiry, agents, communities – dispositions may be either epistemically valuable or epistemically harmful, and so seem a natural topic for epistemological examination.

In the next section, we will begin by drawing two (controversial) lessons from the Turri and Bronner cases: that some important epistemic dispositions are partly extrinsic, and that objects may have non-trivial dispositions concerning circumstances where they fail to exist. If those lessons are correct, then neither Turri's second case nor Bronner's case is a clear counterexample to our proposed dispositional tracking view. Section 3 draws an even more controversial lesson about the behaviour of disposition attributions. If that lesson is correct, then neither of Turri's two remaining cases is a clear counterexample to our proposed dispositional tracking view either. We leave it to readers to decide if the responses we suggest on the dispositional Nozickian's behalf are prices worth paying.

### **1. Initial Lessons: Extrinsic Dispositions; Dispositions Concerning Non-Existence**

Some changes in dispositions are entirely extrinsic. My disposition to go bankrupt can be produced or removed by broader economic conditions, attitudes of my creditors, sudden crashes in house-prices, and so on. I can gain or lose the disposition without changing any of my relevant intrinsic properties – without watching the news, talking to my creditors, or doing anything of the sort.<sup>7</sup> Likewise, some differences in knowledge are due to extrinsic differences; two

---

<sup>5</sup> See e.g. Linda Zagzebski, *Virtues of the Mind* (Cambridge: Cambridge University Press, 1996).

<sup>6</sup> See e.g. Allan Gibbard, "Aiming at Truth Over Time," *Oxford Studies in Epistemology* 2 (2008): 190-204.

<sup>7</sup> See Jennifer McKittrick, "A Case for Extrinsic Dispositions," *Australasian Journal of Philosophy* 81, 2 (2003): 155-174, and Daniel Nolan, *David Lewis* (Chesham: Acumen, 2005), 104-105.

agents who are intrinsically the same may differ in what they know. To adapt a case from Williamson,<sup>8</sup> suppose that two intrinsically identical perceivers, Vera and Imogene, both truly believe that there is a sheep in a particular field. But Vera's belief is caused by veridical perception of a sheep, while Imogene's belief is caused by a complicated illusion. It seems that Vera knows there is a sheep in the field, while Imogene does not.

Given that some epistemic states and some non-epistemic dispositions are extrinsic, we should suspect that some epistemic dispositions are extrinsic. In our view, Bronner's case illustrates how differences in knowledge can turn on extrinsic differences in dispositions. Bronner's strategy is to begin with one of our cases from our paper,<sup>9</sup> which we claim is a case of knowledge. He then develops a similar example in which an intrinsically similar agent seems to lack knowledge. Bronner claims that the agents in the two examples have the same dispositions, so that the dispositional tracking theory cannot capture the verdict that only one of them is a case of knowledge. But as we will see, Bronner seems to assume that all the relevant differences in dispositions are grounded in differences in intrinsic properties. Let us now turn to the two examples.

In the situation we describe, Adolf believes that he has a rare, almost always fatal, brain condition. He is disposed to so believe because of his medical knowledge and what he has been told by experts. He is also disposed to not believe he has the condition if he does not; the reliable and informed authorities would not have detected the disease had he not had it. In Bronner's modified case, even though Adolf has the disease, his belief that he has the disease is due to the machinations of Olaf, who hires actors to impersonate doctors and laces Adolf's food with a drug that mimics the symptoms of the disease.

Bronner claims that in his version of the case, "all of Adolf's dispositions are the same as in the original case."<sup>10</sup> And indeed, Adolf is relatively unchanged *intrinsically* between Bronner's case and ours (leaving aside any internal differences due to his symptoms being due to drugs rather than the disease). But it seems to us very natural to think that Adolf does have different dispositions in Bronner's case. Bronner's Adolf is disposed to think he has the disease *whether or not he has it*; hence, it is *false* that Adolf is disposed *not* to believe he has the disease in circumstances where he does not have it. (Because of Olaf's actions,

---

<sup>8</sup> Timothy Williamson, *Knowledge and its Limits* (Oxford: Oxford University Press, 2000), section 3.1, ultimately from Roderick Chisholm, *Theory of Knowledge* (Englewood Cliffs: Prentice Hall, 1966), 23.

<sup>9</sup> Briggs and Nolan, "Mad, Bad," 315.

<sup>10</sup> Bronner, "Problems," 506.

Adolf would be surrounded by actors and exhibiting fake symptoms even were he to lack the disease.) Therefore, Adolf does not count as knowing on the dispositional account we offer to Nozickians.

You might suspect that we are substituting a counterfactual judgement for a dispositional one. To see that we are not, consider a case just like Bronner's except that Adolf lacks the disease. In this case, Adolf is disposed to believe he has the disease; after all, Olaf's minions are still lying to Adolf, and his symptoms are still being faked. Plausibly, in this variant of Bronner's case Adolf has the same relevant epistemic dispositions as in Bronner's case. Thus, since in our variant case Adolf has the disposition to believe he has the disease even in circumstances where he does not have the disease, in Bronner's original case, Adolf is disposed to believe he has the disease even in the circumstance in which he does not have the disease.

We think this diagnosis of Bronner's case can be extended to other Gettier-style cases. The woman who sees a cleverly-disguised dog in the sheep field is disposed to believe there are sheep there in circumstances where there are not (even though there happen to also be hidden sheep in that field). The man in fake-barn country is disposed to believe there is a barn in front of him in circumstances in which there is not (even though, as it happens, there is a real barn in front of him at the time). The field-gazer and barn-spotter need not be intrinsically different from counterparts in epistemically better environments, but may differ in epistemically relevant dispositions for all that.

Let us now turn to a case from Turri, from which we will draw a second lesson. Turri exists, and believes that he does. Turri claims that on a dispositional tracking view, his belief cannot count as knowledge. For Turri cannot have a disposition that manifests in circumstances where he does not exist. *A fortiori*, Turri is not disposed not to believe he exists, in the circumstance where he does not exist. But this is absurd – surely Turri knows he exists.

We agree that Turri knows he exists, but disagree about whether the dispositional tracking view can capture this judgment. We are inclined to think that there are many true disposition claims about what Turri is disposed to do on condition he does not exist. He is disposed to not dance when he doesn't exist. (The non-existent don't get out much.) He is disposed to not vote when he does not exist (perhaps unlike some of the voters in 1960s Chicago, who were rumoured to continue voting after death). And, we think, he is disposed to not believe anything on condition that he does not exist: and inter alia, to not believe that he exists.

Distinguish this claim from the claim that if he were he non-existent, he would be disposed to not dance, or not vote, or not believe. Maybe it is true that the only entities with dispositions are existent entities. (We are not sure, but let us grant that for the sake of the argument.) It could still be that existing entities could be disposed to  $\Phi$  in  $C$ , where  $C$  is the non-existence of the entity. There are many circumstances in which Turri does not sing, including those where he does not exist. (And this is true even if there are no non-existent non-singers.) Likewise, we think, there are many circumstances such that he is disposed to not sing in those circumstances: most of the ones where he does not sing, and all of the ones where his non-singing is explained by his non-existence.

If you do not agree with us about dispositions to behave in conditions where one does not exist, then the letter of account we offer Nozickians will need to be tweaked: we think the special cases involving the believer's existence will not be fatal to the spirit of the dispositional tracking project. We do not ourselves see the need for any tweak here, but we also think that a principled account of dispositions that said otherwise, by agreeing with Turri's preferred verdicts about dispositions under conditions of non-existence, would be of interest well beyond disputes about the role of dispositions in epistemology.

## 2. A Third Lesson: Paying Attention to Contrast

Turri's two remaining cases raise the issue of contrast between a disposition's conditions and different alternatives to that condition. We suggest a way of responding to the cases that enable a Nozickian to hold onto our original proposal.

In the first of Turri's remaining cases, Dora's ankle is struck hard, causing her pain, and a belief that she is in pain, in the obvious way. But Dora is a hypochondriac, and even a glancing blow that caused only discomfort would cause her to believe she was in pain. Turri claims that Dora "is not disposed to not believe she is in pain in the circumstance where she isn't in pain,"<sup>11</sup> and so the account we propose is forced to judge that she does not know she is in pain.

Whether Turri is right rather depends on what counterfactual circumstances in which Dora is not in pain are relevant. (Presumably not every possible circumstance: a robust object may be disposed to not break if struck, even if it is possible for it to be struck and break – e.g. if it is struck as a bomb is detonated.) In a typical situation where she is not struck at all, she does not believe she is in pain. In a typical situation where she suffers discomfort (but not pain) from being struck, she does believe she is in pain, due to her hypochondria.

---

<sup>11</sup> Turri, "Stumbling," 292.

A plausible thing to think about disposition ascriptions is that whether they are true or not goes along with what happens in the relevant counterfactual scenarios: when  $X$  is disposed to  $\Phi$  in  $C$ , then  $X$   $\Phi$ s in the relevant actual and counterfactual  $C$  situations (all of them, or maybe most of them, or if Michael Fara is right,<sup>12</sup> generically across them, which does not invariably require that  $X$   $\Phi$ s in all, and may not even require that it  $\Phi$ s in most). So, how is the relevant class of counterfactual circumstances to be fixed?

We will not essay a general answer to this question here. We will suggest, however, that the right answer for evaluating a given dispositional claim might depend on context: there is a sense in which Dora is not disposed to believe she is in pain when she is not in pain (since she is typically not suffering from hypochondriac beliefs that she is in pain), and a sense in which it is *not* the case that she is not disposed to believe she is in pain when she is not (after all, in some situations much like the actual one she is experiencing only mild discomfort but believing it is pain). If the truth of this disposition ascription does depend on context, then our Nozickian can hold onto the claim that Dora knows she is in pain despite Turri's claim she is not disposed to think she is not: they are talking past each other due to context shift.

But our Nozickian may have gone from the frying pan to the fire. *Which* available disposition claim ought we rely on when making a judgement about knowledge? One could go contextualist about knowledge claims in a way that matches the contextualism about disposition claims, allowing that Turri has set up a context where "Dora does not know she is in pain" is true, contra intuition. Another approach would be to say that the Nozickian's conditions are correct, *provided the right contextual parameter is used to interpret them*. (Compare David Lewis's 1973 counterfactual theory of causation,<sup>13</sup> that requires the right contextual parameter for counterfactuals to be used in the analysis – according to Lewis, the context governed by the rules of his later 1979 paper<sup>14</sup>).

A challenge would then be to articulate independent criteria for which disposition ascriptions counted. If independent criteria cannot be given, the dispositional tracking theory risks circularity:  $S$  knows that  $p$  when she is disposed to track  $p$ 's truth, where we understand the disposition claim in terms of whatever gets the facts about  $S$ 's knowledge correct. Of course, even a circular tracking theory might still offer some sort of illumination, and might still be informative enough to remain susceptible to counterexamples.

---

<sup>12</sup> Michael Fara, "Dispositions and Habituals," *Noûs* 39, 1 (2005): 43-82.

<sup>13</sup> David Lewis, "Causation," *Journal of Philosophy* 70 (1973): 556-567.

<sup>14</sup> David Lewis, "Counterfactual Dependence and Time's Arrow," *Noûs* 13 (1979): 455-476.

Alternatively, if disposition claims are sensitive to the relevant class of alternative counterfactual situations, but this class does not vary with context, then there might be a once-and-for-all answer about whether Dora is disposed to not believe she is in pain when she is not in pain. The once-and-for-all answer might come out the way Turri suggests. However, noticing the role of the class of alternatives suggests a way for dispositional Nozickians to modify their account: instead of stating the relevant dispositions in terms of circumstances in which  $p$  is true, or in which  $p$  is not true, they could state the dispositions with more careful attention to privileged circumstances in which  $p$  obtains or in which  $p$  fails. Such Nozickians would again face the challenge of spelling out these circumstances in independent terms, or face the risk of circularity.

With these observations in hand, we are ready to handle Turri's last remaining case. Suppose I know an ordinary proposition  $q$ , and I believe, on the basis of carefully considering my evidence, that I know  $q$ . In standard cases, we would be inclined to think that I know that I know  $q$ . However, Turri contends, I am *not* disposed to not believe that I know  $q$  in circumstances where I do not in fact know it. If my belief in  $q$  were false, I would still believe I knew  $q$ . This is not a welcome result: it would be very surprising if we knew so little about what we know.

Turri's verdict about the case turns on the assumption that some of the relevant alternative circumstances where I do not know  $q$  are cases in which I nevertheless believe  $q$ . We find this assumption dubious. Since I tend to know  $q$  when I believe it, I will tend not to believe it – much less believe that I know it – when it is not true. If context plays a role in determining the relevant alternatives, the Nozickian can plead that in most contexts, the relevant cases where I do not know  $q$  tend to be cases where do not believe  $q$  either. Or if there is a once-and-for-all answer to whether I am disposed to not believe that I know, it is not at all clear that Turri's case can be spelled out so as to be a plausible counterexample. Even if the case does turn out to be a plausible counterexample to the dispositional Nozickian view, the Nozickian can modify the account by appealing to a more careful pair of disposition claims.

The broader lesson of this reflection, whatever verdict we have about Turri's cases in particular, is that when specifying dispositions considerations of contrast seem important: and insofar as presenting us with different contrasts inclines us to different judgements about which dispositional ascriptions are apt, this is some support for the claim that disposition ascriptions are dependent on context. (We take no stand here on whether the contextual parameter just is a

Rachael Briggs, Daniel Nolan

contrast class, or whether it is something else that can be affected by introducing contrasts to the conversational score.)

### **Conclusion**

While we are not convinced by the proposed counterexamples offered by Bronner and Turri, we hope that this is no mere stalemate. We think that the cases point to interesting lessons about the nature of dispositions and disposition claims in general, and to potential ways of refining theories of epistemic dispositions in particular. While our discussion here has focused on a particular Nozickian theory of knowledge, it also has a broader significance. Given the role of dispositional thinking in our understanding of each other, dispositional thought must surely play a role in our epistemic evaluations of each other. So whatever the fate of dispositional Nozickianism, resolving the issues we have pointed to here will surely play a significant role in any complete epistemological theory.



# SAVING SOSA'S SAFETY

Mark McBRIDE

ABSTRACT: My purpose in this paper is to (begin to) defend safety as a necessary condition on knowledge. First, I introduce Ernest Sosa's (1999) safety condition. Second, I set up and grapple with Juan Comesaña's recent putative counterexample to safety as a necessary condition on knowledge; Comesaña's case forces us to consider Sosa's updated (2002) safety condition. From such grappling a principled modification to Sosa's (2002) safety condition emerges. Safety is safe from this, and like, attacks.

KEYWORDS: Ernest Sosa, safety, knowledge

0.1. My purpose in this paper is to (begin to) defend *safety* as a necessary condition on knowledge. First, I introduce Ernest Sosa's (1999) safety condition.<sup>1</sup> Second, I set up and grapple with Juan Comesaña's recent putative counterexample to safety as a necessary condition on knowledge;<sup>2</sup> Comesaña's case forces us to consider Sosa's updated (2002) safety condition.<sup>3</sup> From such grappling a principled modification to Sosa's (2002) safety condition emerges. Safety is safe from this, and like, attacks.

## 1. Safety Introduced

1.1. Sosa offered the following first pass at a safety condition on knowledge (time designations suppressed throughout):

Call a belief by S that p 'safe' iff: S would not believe that p without it being so that p. (Alternatively a belief by S that p is safe iff: as a matter of fact, though

---

<sup>1</sup> Ernest Sosa, "How Must Knowledge be Modally Related to What is Known?" *Philosophical Topics* 26 (1999): 373-384. Timothy Williamson, *Knowledge and its Limits* (Oxford: Oxford University Press, 2000), ch.5, also operates with a (distinct) safety condition on knowledge.

<sup>2</sup> Juan Comesaña, "Unsafe Knowledge," *Synthese* 146 (2005): 395-404.

<sup>3</sup> Ernest Sosa, "Tracking, Competence, and Knowledge," in *The Oxford Handbook to Epistemology*, ed. Paul Moser (New York: Oxford University Press, 2002), 264-286.

perhaps not as a matter of strict necessity, S would not believe that p without it being so that p.)<sup>4</sup>

By such a condition's lights, on its supporters' views, we're not prevented from having quotidian knowledge, and nor are we prevented from having knowledge of the falsity of an array of sceptical hypotheses. So far, so good, one might think, for safety.

1.2. Note that safety – a reliability notion – is a squarely *externalist* condition on knowledge. It does not inquire one jot, for example, into a putative knower's recognition of certain epistemically salient facts about the basis, or bases, on which he adopts a particular belief. Rather, for a belief to be safe is simply for a particular modal relation to hold between a subject's belief that p and the fact that p.

1.3. Before coming to Comesaña's putative counterexample to safety, note one (familiar) modification to safety:

A belief that p by S is safe iff S would not believe that p *on the same basis* without it being so that p.<sup>5</sup>

(Or:  $S B(p)$  on basis e  $\rightarrow$  p.)

This modification – as Comesaña points out<sup>6</sup> – is incorporated by Sosa's (2002) updated condition on knowledge, a condition which we'll be focusing on, and modifying, in the remainder of this paper.<sup>7</sup>

---

<sup>4</sup> Sosa, "Modally," 378. Or:  $S B(p) \rightarrow p$  (and not the stronger:  $\Box [S B(p) \rightarrow p]$ ). Read ' $S B(p)$ ' as: "A subject, S, believes that p." Following Sosa, we can read ' $\rightarrow$ ' as '*subjunctively implies*': if  $p \rightarrow q$ , "its being so that p offers some guarantee, even if not an absolute guarantee, that it is also the case that q" ("Tracking," 284, n.4). If one formulates safety in terms of a subjunctive conditional one will operate with an account of the semantics of subjunctive conditionals not rendering true-true subjunctives trivially true – cf. Robert Nozick, *Philosophical Explanations* (Cambridge: Belknap, 1981), 680-681, n.8. And, assuming the truth of the relevant subjunctive conditional, any plausible semantics therefor will have the relevant material conditional not coming out false at the actual world.

<sup>5</sup> Comesaña, "Unsafe," 397 (my emphasis).

<sup>6</sup> Comesaña, "Unsafe," 403, n.4.

<sup>7</sup> I assume that all cases considered herein involve beliefs formed on the same basis in the actual and relevant counterfactual circumstances (cf. Timothy Williamson, "Replies to Critics," in *Williamson on Knowledge*, eds. Patrick Greenough and Duncan Pritchard (Oxford: Oxford University Press, 2009), 307).

## 2. Comesaña's Putative Counterexample: HALLOWEEN PARTY

### 2.1 Comesaña asks us to consider the following case:

There is a Halloween party at Andy's house, and I am invited. Andy's house is very difficult to find, so he hires Judy to stand at a crossroads and direct people towards the house (Judy's job is to tell people that the party is at the house down the left road). Unbeknownst to me Andy doesn't want Michael to go to the party, so he also tells Judy that if she sees Michael she should tell him the same thing she tells everybody else (that the party is at the house down the left road), but she should immediately phone Andy so that the party can be moved to Adam's house, which is down the right road. I seriously consider disguising myself as Michael, but at the last moment I don't. When I get to the crossroads, I ask Judy where the party is, and she tells me that it is down the left road.

### And Comesaña's gloss thereon:

In this case, after I talk to Judy I know that the party is at the house down the left road, and yet it could very easily have happened that I had the same belief on the same basis (Judy's testimony) without it being so that the belief is true. That is, in this case I know that p but my belief that p is not safe – I have unsafe knowledge.<sup>8</sup>

2.2. Ahead of grappling with HALLOWEEN PARTY let's note Sosa's updated safety(-related)<sup>9</sup> principle – a principle motivated in response to cases demonstrating that *outright tracking*<sup>10</sup> isn't necessary for knowledge. Let's introduce it first – laden with heretofore unexplained Sosa-terminology – and explain the terminology by way of applying it to HALLOWEEN PARTY, the case in hand. Here's the updated principle:

S knows that p on the basis of an indication I(p) only if either (a) I(p) indicates the truth outright and S accepts that indication as such outright, or (b) for some condition C, I(p) indicates the truth dependently on C, and S accepts that

---

<sup>8</sup> Comesaña, "Unsafe," 397.

<sup>9</sup> I say 'safety(-related)' as it does not, unlike the first pass set out at 1.1 *supra*, take the explicit form of a *definition* of safety. It rather takes the explicit form of a (disjunctive) necessary condition on knowledge, though it *should also* be taken as stating a (disjunctive) necessary and sufficient condition for *safe acceptance* – cf. n.21 *infra*. (The same goes, *mutatis mutandis*, for my modification of this principle to come.) Note, moreover, that it employs the more general notion of acceptance rather than belief. (This will not matter, however, for present purposes, as throughout we assume the form of acceptance in question is belief.)

<sup>10</sup> "One tracks the truth, outright, in believing that p IFF one would believe that p iff it were so that p: i.e., would believe that p if it were so that p, and only if it were so." (Sosa, "Tracking," 267)

indication as such not outright but *guided* by C (so that S accepts the indication as such *on the basis* of C).<sup>11</sup>

The indication, I(p), in HALLOWEEN PARTY, is Judy's testimony to me that the party is down the left road.<sup>12</sup> Disjunct (a) doesn't hold: Judy's testimony doesn't indicate the truth outright as Judy's testimony indicates the truth dependently on the fact that-I-do-not-appear-to-Judy-Michael'ly (C).<sup>13</sup> What is it for an indication to 'indicate[] the truth outright'? This happens iff  $I(p) \rightarrow p$ . That leads us to disjunct (b). The first conjunct of the conjunctive condition contained in disjunct (b) is true. What is it for an indication to 'indicate[] the truth dependently on C'? This happens iff C obtains and  $[C \& I(p)] \rightarrow p$ , but  $\sim [I(p) \rightarrow p]$ . The second conjunct of the conjunctive condition contained in disjunct (b), however, is false: *ex hypothesi* I don't accept Judy's testimony as true conditional on the fact that-I-do-not-appear-to-Judy-Michael'ly. As the case is set up, I'll accept Judy's testimony whether or not I appear to her Michael'ly. So I don't accept the indication '*guided* by,' or '*on the basis* of,' C. (If I *do* accept Judy's testimony as true conditional on the fact that-I-do-not-appear-to-Judy-Michael'ly, HALLOWEEN PARTY becomes a straightforward case of safe knowledge.)

And so Sosa's updated (2002) safety principle – as Comesaña notes<sup>14</sup> – cuts no ice against HALLOWEEN PARTY. By its lights we still have unsafe knowledge.

---

<sup>11</sup> Sosa, "Tracking," 275-276. Sosa adds the following disjunct to (b) in his most recent condition on (animal) knowledge based on an indication: "...or else...C is constitutive of the appropriate normalcy of the conditions for the competence exercised by S in accepting I(p)." (footnote omitted) (Ernest Sosa, *A Virtue Epistemology, Vol.1* (Oxford: Clarendon Press, 2007), 105.) The candidate C in HALLOWEEN PARTY (to come) does not satisfy this disjunct. Sosa defends this (2007) condition on (animal) knowledge yet now disavows that safety is a necessary condition on (animal) knowledge: the addition of this disjunct must disqualify the principle in question from counting as a *safety* principle (*Virtue*, 92-93). Finally, for more on the basing relation – which features in both the antecedent and consequent of Sosa's (2002) principle –, see Keith Korcz, "The Epistemic Basing Relation," in *The Stanford Encyclopedia of Philosophy*, ed. Edward Zalta, 2006.

<sup>12</sup> Sosa wavers on this ("Tracking"). Transposing things to HALLOWEEN PARTY: at times Sosa takes the indication (or: safe *deliverance*) to be what Judy's testimony *causes* in me, but at other times he takes it to be *Judy's testimony to me itself*. Comesaña – and I will follow suit – goes with the latter interpretation (though I do not think this is crucial). Also, note it is, crucially, "Judy's testimony *to me*." For ease of prose I omit the 'to me' hereinafter, but please read it in.

<sup>13</sup> Because we are interested in Judy's testimony *to a particular subject*, and that subject is me, the C on which I focus is as stated, and not the more general: that-Judy-is-not-appeared-to-Michael'ly.

<sup>14</sup> Comesaña, "Unsafe," 399.

2.3. Let's now grapple with HALLOWEEN PARTY. We need to modify Sosa's (2002) safety principle.<sup>15</sup> My modified principle aims to capture a pre-theoretic notion of beliefs which are safe from danger of being false, just as other objects can be safe from myriad dangers. Moreover, the modification is motivated by scrupulous attention to the externalism which underpinned safety's first formulation. Earlier, we noted the squarely externalist nature of safety's initial formulation: it's merely the positing of a modal relation between a subject's belief and a fact. So we might be suspicious of the internalist flavour to 2.2's updated safety principle: 2.2's principle requires – *modulo* no outright indication of truth – that the putative knower accept the indication in question 'guided by' and 'on the basis of C.' I take it that, in order to do this, the putative knower in HALLOWEEN PARTY (viz. me) must, at the very least, *recognise* (or: *be aware of*) the condition under which the indication in question indicates the truth.<sup>16</sup> (And so the internalism in question here is *access internalism about grounds*: one must have access to the conditions for a ground (or indication) counting as justified (or safe).)<sup>17</sup> Elseways there is no principled reason for the putative knower in HALLOWEEN PARTY (viz. me) to accept Judy's testimony guided by, or on the basis of, the fact that-I-do-not-appear-to-Judy-Michael'ly.<sup>18</sup>

But why – *modulo* no outright indication of truth – require this for knowledge? It seems that this further requirement, as to the putative knower's recognition-based-acceptance in HALLOWEEN PARTY, is more aptly viewed as a requirement – *modulo* no outright indication of truth –, not on knowledge *simpliciter*, but on knowing that one knows.

---

<sup>15</sup> As a closely-related alternative to my proposal (to come) one might develop an explicitly time-sensitive notion of safety (cf. Mark Sainsbury, "Easy Possibilities," *Philosophy and Phenomenological Research* 57 (1997): 907-919, Christopher Peacocke, *Being Known* (Oxford: Clarendon Press, 1999), 310-328, and Williamson, *Limits*, 124)).

<sup>16</sup> Sosa, "Tracking," 271.

<sup>17</sup> Jim Pryor, "Highlights of Recent Epistemology," *British Journal for the Philosophy of Science* 52 (2001): 106-108.

<sup>18</sup> I restrict my claim here to HALLOWEEN PARTY (and like cases). (Compare: If disjunct (a) were to hold, even though S would know p on the basis of an indication I(p), I would not take any internalism to be implicated thereby. This is because I take there to be a fundamental difference (in this regard) between accepting an indication outright (disjunct (a)) and not outright (disjunct (b)) – cf. disjunct (b)(ii) to come.) The form of acceptance required by 2.2's safety principle – *modulo* no outright indication of truth – could, in some cases, be cashed out simply in terms of a modal relation between a subject's acceptance that p and the fact that p (Sosa, "Tracking," 272). But, insofar as my restricted claim is right, we've departed from a purely externalist safety condition. Cf. Sosa's later comments on 'guidance' ("Tracking," 282).

2.4. So the challenge is to set out a modified – more externalist – version of Sosa’s updated (2002) safety principle. We need two novel pieces of terminology. First, a schema introducing the notion of a *safe condition*:

(C<sub>SAFE</sub>) A condition, C, is safe iff C obtains,<sup>19</sup> and if C were the case in the way described in the thought-experiment under consideration, then C would hold in all<sup>20</sup> close possible worlds.

We’ll refer to a safe condition as (a) C<sub>SAFE</sub>. Just as we can talk of the safety of a subject’s belief that p – where that is cashed out as a modal relation between a subject’s belief that p and the fact that p –, so we can talk of the safety of a condition, C – where that is cashed out in terms of how far into modal space C holds, conditional on C being the case in the way described in the thought-experiment under consideration. That is, in the thought-experiments to come, we suppose the candidate C is the case in the way described in the thought-experiment under consideration, and then, given an intuitive ordering of worlds, check whether that condition, C, holds in all close possible worlds. In what follows, I want to suggest that it’s intuitive to add a disjunct to Sosa’s safety principle (thereby weakening it) making reference to the safety of candidate *conditions*.

Now here’s our modified safety principle:

S knows that p on the basis of an indication I(p) only if EITHER (a) I(p) indicates the truth outright and S accepts that indication as such

---

<sup>19</sup> This functions, in part, to prevent necessarily false conditions from being trivially safe conditions. On standard semantics for subjunctive conditionals necessarily false antecedents make (vacuously) true subjunctive conditionals. Sosa’s account of dependent indication (see 2.2 *infra*) itself requires that C obtains. But I prefer an independent obtention requirement on C<sub>SAFE</sub>s themselves. Finally, by ‘obtain’ I take it that Sosa means ‘obtain *in the actual world*.’ That is, in engaging with these thought-experiments (which may, though need not of course, be actual cases), we *suppose* C obtains *in the actual world*, and not in some (remote) possible world which may have *bizarre metaphysics*. This is one reason why the following, admittedly cleaner, safe condition schema will not do: A condition C is safe at a world w iff C holds in all close possible worlds to w.

<sup>20</sup> One might explore alternative formulations, for example replacing ‘all’ with ‘all or nearly all’ – cf. Duncan Pritchard’s safety account in *Epistemic Luck* (Oxford: Clarendon Press, 2005). It has, though, been noted by John Greco that Pritchard’s account may have especial difficulties with the *lottery problem* (cf. n.40 *infra*) (“Worries about Pritchard’s Safety,” *Synthese* 158 (2007): 299-302). It should be noted that Pritchard has since attempted to amend his account of safety in an effort to respond to Greco’s (and others’) objections (“Safety-Based Epistemology: Whither Now?” *Journal of Philosophical Research* 34 (2009): 33-45). I don’t attempt to adjudicate on this debate here.

outright, OR (b) either (i) for some condition C, I(p) indicates the truth dependently on C, and S accepts that indication as such not outright but *guided* by C (so that S accepts the indication as such *on the basis* of C),<sup>21</sup> or (ii) for some non-trivial condition C<sub>SAFE</sub>, I(p) indicates the truth dependently on C<sub>SAFE</sub>, and S accepts that indication not-as-such outright.<sup>22</sup>

And now our second piece of terminology. Call a C<sub>SAFE</sub> meeting the requirements of disjunct (b)(ii) (viz. it is non-trivial and I(p) indicates the truth dependently on it) *relevantly-safe* – (a) C<sub>R-SAFE</sub>.<sup>23</sup> And a condition is trivial iff it is, or entails, the putatively known proposition; non-trivial otherwise.<sup>24</sup> In HALLOWEEN PARTY this non-triviality requirement thus rules out conditions such as: that-the-party-is-down-the-(bumpy-)left-road. Note that the (putatively relevantly-safe) condition that-I-do-not-appear-to-Judy-Michael'ly *does not entail* that Judy's testimony that the party is down the left road is true: Judy's testimony could still have been false for any number of reasons (albeit such reasons obtain, ex hypothesi, only in distant possible worlds).

But consider the condition: [p v ~I(p)]. The disjunction as a whole neither is, nor entails, p; and I(p) indicates the truth dependently on the disjunction (by disjunctive syllogism). Objection:<sup>25</sup> To allow this as a C<sub>R-SAFE</sub> would be to trivialise the notion of C<sub>R-SAFES</sub>: *for any p* one could construct a C<sub>R-SAFE</sub> consisting of the

---

<sup>21</sup> What is now called 'disjunct (b)(i)' must be retained. Though – *modulo* no outright indication of truth – such 'guidance' is no longer *necessary* for *safety*, it is still (stand-alone) *sufficient* therefor (cf. n.9 *supra*): If I *do* accept Judy's testimony as true guided by the condition that-I-do-not-appear-to-Judy-Michael'ly, HALLOWEEN PARTY, we've seen, becomes a straightforward case of safe knowledge (and, arguably, second-order knowledge), even if that *condition* does not, suppose, obtain safely.

<sup>22</sup> That is, S *does* accept the indication *outright*, but *not-as-such* outright, as the indication in question, if disjunct (b)(ii) is to be satisfied, is *not*, ex hypothesi, an outright indication of truth. Finally, it is worth noting that disjunct (b)(i) *can* (though of course need not) be satisfied by a C<sub>SAFE</sub>. Mutual exclusivity would still be maintained between (b)(i) and (b)(ii) due to the different forms of acceptance involved in satisfaction of the two disjuncts. (For the mutual exclusivity of disjuncts (a) and (b) ((b)(ii) in particular), see 2.5 *infra*.)

<sup>23</sup> This second novel piece of terminology is necessary. For example, that-2+2=4 is, and that-my-washing-machine-is-functioning can be, a C<sub>SAFE</sub>. Without more, these conditions aren't relevant to our inquiry. We need to isolate a proper subset of C<sub>SAFES</sub> – C<sub>R-SAFES</sub> – in which we're particularly interested.

<sup>24</sup> Comesaña, "Unsafe," 403, n.7.

<sup>25</sup> I close the paper, in 2.7-2.10 *infra*, with four numbered objections to my *fully interpreted* safety principle. This objection, as with the subsequent objection in 2.5, bears on the antecedent matter of *correctly interpreting* my safety principle.

disjunction of  $p$  and the negation of an indication that  $p$ . One should combat this by making it sufficient for triviality that a *disjunct* of the condition is, or entails,  $p$ . Reply: While this objection draws attention to an interesting class of condition, it ignores the fact that being  $C_{SAFE}$  is a prerequisite for being  $C_{R-SAFE}$ . However, it will follow that on any occasion in which  $[p \vee \sim I(p)]$  is  $C_{SAFE}$  it will also be  $C_{R-SAFE}$ . To the extent that this is a problematic result – something on which I do not here commit –, we will need to modify our definition of triviality in line with this objection.

2.5. This modified safety principle is a move towards the externalism which motivated initial (1999) formulations of safety, and dispenses with the internalist flavour of subsequent (2002) formulations. (Recall: 2.2's principle requires – *modulo* no outright indication of truth – that the putative knower accept the indication in question 'guided by' and 'on the basis of C.' My modified safety principle rejects this requirement.) My claim here is only this: Insofar as one is interested in defending safety as a necessary condition on knowledge, why not see how far one can get with a more externalist account thereof? After all, as noted, initial formulations of safety were (purely) externalist.

Does this modified safety principle, however, handle HALLOWEEN PARTY? Do we get the result that I gain knowledge of the whereabouts of the party from Judy's testimony – chiming with our intuitions – with the belief on which such knowledge is based rendered safe by dint of fulfilment of disjunct (b)(ii)? To answer these questions we first, obviously, assess this (more externalist) safety condition's success in handling HALLOWEEN PARTY. But our enquiry should not rest there. We'll then move on to consider its plausibility (in general) by considering some objections thereto.

And so to HALLOWEEN PARTY itself and the candidate condition that-I-do-not-appear-to-Judy-Michael'ly. It's plausible that if this C were the case in the way described in HALLOWEEN PARTY – at which point in time, ex hypothesi, crucially my *decision has been made* not to disguise myself as Michael – Judy won't be appeared to Micheal'ly by me in any close possible worlds. I take it we should read such a decision into HALLOWEEN PARTY; elseways how do we explain my move from 'seriously considering disguising myself as Michael' to – 'at the last moment' – not doing so?<sup>26</sup> To be sure, there are remote worlds in which, even after the decision has been made not to disguise myself as Michael, I end up

---

<sup>26</sup> Cf. Joseph Raz, *Practical Reason and Norms*, 2<sup>nd</sup> ed. (Oxford: Oxford University Press, 1999), 65. Comesaña ("Unsafe," 399) reads such a decision in. This suggests a candidate (complementary)  $C_{R-SAFE}$ : that-I-*decide*-not-to-appear-to-Judy-Michael'ly (see 2.9 *infra*).



disguising myself as Michael.<sup>27</sup> But, provided we stick to the case as set up, these 'disguising myself as Michael'-worlds will not be close enough to threaten the safety of my true belief that the party is down the left road.

It is the element of *prior decision* – reached, I take it, as a result of deliberation on the reasons for or against the action in question; with decisions themselves terminating that deliberation and being reasons<sup>28</sup> – which distinguishes HALLOWEEN PARTY from ensuing cases we'll consider. At a more general level, a condition will be  $C_{SAFE}$  if<sup>29</sup> there is some (*non-luck-infected*)<sup>30</sup> factor – whether a mental act, as in HALLOWEEN PARTY, or not – which pre-dates the putatively safe condition, and serves to *secure* that condition's holding in all close possible worlds. So this candidate condition is  $C_{SAFE}$ . Moreover, we saw in 2.2 that Judy's testimony indicates the truth dependently on this (non-trivial)  $C_{SAFE}$ . So it's a relevantly-safe condition: it's  $C_{R-SAFE}$ . We thus have disjunct (b)(ii) of 2.4's modified safety principle being met. We, untroublingly, have safe knowledge in HALLOWEEN PARTY.

There is, however, a complication here relating to how an indication can indicate the truth dependently on a  $C_{SAFE}$ . Or, put differently: how a  $C_{SAFE}$  can be a  $C_{R-SAFE}$ . Objection: For Sosa, we've seen, an indication indicates the truth dependently on a condition iff C obtains and  $[C \& I(p)] \rightarrow p$ , but  $\sim [I(p) \rightarrow p]$ . But if C is a  $C_{SAFE}$ , (*a fortiori*) obtains, and  $[C \& I(p)] \rightarrow p$ , that seems to entail that:  $[I(p) \rightarrow p]$ . Reply: However this is not so. Though there is, at root, one question to be determined in HALLOWEEN PARTY – viz. do I possess knowledge? –, two 'contexts of thought or discussion' are 'relevant' at different stages of enquiry into that question.<sup>31</sup> At the first stage of enquiry – determining whether the condition in question is  $C_{SAFE}$  – schema ( $C_{SAFE}$ ) *makes salient* the way in which the condition

<sup>27</sup> There are also worlds – I take it remote, if it were the case that-I-do-not-appear-to-Judy-Michael'y in the way described in HALLOWEEN PARTY – in which I *don't decide* not to dress as Michael. I am not, by diktat, holding *that decision* fixed *across all worlds*.

<sup>28</sup> These remarks are taken from Raz ("Reasons for Action, Decisions, and Norms," in *Practical Reasoning*, ed. Joseph Raz (Oxford: Oxford University Press, 1978), 135, *PRN*, 65-72). For Raz, "a decision is always, for the agent, a reason for performing the act he has decided to perform and for disregarding further reasons and arguments. It is always both a first-order and an exclusionary reason" (*PRN*, 66). Consistently with this, "in most cases the refusal to reopen the case is not absolute" (*PRN*, 67). Cf. also Joseph Raz, *Engaging Reason* (Oxford: Oxford University Press, 2002), ch.1.

<sup>29</sup> I am not committed to the 'only if' claim.

<sup>30</sup> I leave this notion intuitive, but for an extended analysis of epistemic luck, see Pritchard, *Luck*. It is omitted in what follows, as only non-luck-infected factors can secure the holding of conditions in all close possible worlds.

<sup>31</sup> Sosa, "Tracking," 271.

came about in the thought-experiment under consideration. At the second stage of enquiry – determining whether the condition in question satisfies disjunct (b)(ii) – the foregoing feature of the condition is *not* rendered salient: Sosa’s formulation of when an indication indicates the truth dependently on a condition, of course, makes no reference to  $C_{SAFES}$ . It is only by recognising these two different contexts within a single project of enquiry that we can pay due deference to the initial intuitive pull towards thinking of HALLOWEEN PARTY as a case of unsafety – recognising, that is, that I *could very easily* (in some context of thought or discussion) have disguised myself as Michael. And this will be a general feature of applying my safety principle.<sup>32</sup> Thus, in HALLOWEEN PARTY we assess whether the condition that-I-do-not-appear-to-Judy-Michael’ly satisfies disjunct (b)(ii) *not* building in information about precisely how that condition came about in the thought-experiment (i.e. via a prior decision). Given this, the foregoing entailment does not hold and, plausibly:  $\sim[I(p) \rightarrow p]$ . To fail to adopt this approach, Judy’s testimony would end up indicating the truth outright (*modulo* my reading of HALLOWEEN PARTY). (And, more generally, to fail to adopt this approach, condition (b)(ii) of my safety principle would be unsatisfiable, with my proposal boiling down to Sosa’s updated principle.) While the result would still be safe knowledge, by my reckoning something important would be lost in describing the case this way. Overall, this complication demonstrates the fine line between outright and dependent indications of truth.<sup>33</sup>

2.6. Now, as a preamble to considering objections, let’s distinguish two epistemological projects one might undertake. First, one might attempt to defend safety as a necessary condition on knowledge. This is my project in this paper. Second, and more ambitiously, one might attempt to give a *reductive analysis* of knowledge, with safety as a component part – perhaps: all and only safe true beliefs count as knowledge. For familiar reasons, any such reductive analysis fails to have the resources to account for knowledge of necessary truths.<sup>34</sup> More prosaically, insofar as Kelly Becker’s case,<sup>35</sup> in which a person believes that the earth revolves around the sun solely on the basis of his adherence to a religion in which the sun is worshipped, is non-knowledge such a reductive analysis would fail on this score too. But note, such an analysis is not vulnerable to Sherrilyn

---

<sup>32</sup> To recognise the foregoing is not, I take it, to perforce become an *epistemic contextualist* – see Patrick Rysiew, “Epistemic Contextualism,” in *The Stanford Encyclopedia of Philosophy*, ed. Edward Zalta, 2007.

<sup>33</sup> Sosa, “Tracking,” 270-271.

<sup>34</sup> And for less familiar problems with such a reductive analysis, see David Manley, “Safety, Content, Apriority, Self-Knowledge,” *The Journal of Philosophy* 104 (2007): 408.

<sup>35</sup> Kelly Becker, “Reliabilism and Safety,” *Metaphilosophy* 37 (2006): 691-704.

Roush's FAIRY GODMOTHER case<sup>36</sup> of putative safe non-knowledge, in which a fairy godmother – let's say, of nomological necessity – renders true, for any  $p$ , S's belief that  $p$ , however faulty S's mode of reasoning in coming to believe that  $p$ . Recall (from n.4), our formulation of safety using a subjunctive conditional was:  $S B(p) \rightarrow p$ . It wasn't the stronger:  $\Box [S B(p) \rightarrow p]$ . As such, we can – without complication – rely on the non-obtaining of fairy godmothers in close possible worlds.

The more ambitious project of reductive analysis, however, is not my project here. Insofar, then, as other safety accounts *can* successfully undertake this more ambitious project, my project might seem unduly *unambitious*. But my project would only be *mistaken* should my safety condition not feature as a necessary component of the reductive analysis. (For other accounts which *might* be thought to provide the basis for a reductive analysis – accounts which are not in competition with, and indeed may need to be supplemented by, my account – cf. *method safety/process reliabilism* and *virtue reliabilism*. Each of these alternative accounts is, however, vulnerable to objections – most notably, perhaps, the *generality problem*.) Still, insofar as we follow Sosa<sup>37</sup> in considering safety an advance on *sensitivity*,<sup>38</sup> and insofar as the sensitivity condition allowed for progress on the Gettier problem,<sup>39</sup> it would be troubling for my proposed safety condition if one could readily cook up Gettier-style cases of safe (true beliefs which are) non-knowledge. Any putative Gettier-style cases – see objections 1 and 2 (to come) – of safe non-knowledge should be accommodated by my project.<sup>40</sup>

2.7. Objection 1 and Reply 1: Suppose Judy flips a coin in a situation like HALLOWEEN PARTY but absent the 'that-I-do-not-appear-to-Judy-Michael'ly' condition. Instead, if the coin comes up tails, she'll direct me down the left road to the party at Andy's; if it comes up heads, she'll direct me down the left road to Andy's, but will immediately phone Andy so the party can be moved to Adam's. Call this JUDY COIN-FLIP. Suppose the coin lands tails. Do I know that the party

---

<sup>36</sup> Sherrilyn Roush, *Tracking Truth* (Oxford: Oxford University Press, 2005), 122-123.

<sup>37</sup> Sosa, "Modally."

<sup>38</sup> Viz.: If  $p$  weren't true, S wouldn't believe that  $p$  via  $M$ . (Or:  $\sim p \rightarrow \sim [S B(p) \text{ via } M]$ .) This is a (Nozick-inspired) refinement on Nozick's 'condition (3)' (*Explanations*, 172).

<sup>39</sup> Edmund Gettier, "Is Justified True Belief Knowledge?" *Analysis* 23 (1963): 121-123.

<sup>40</sup> I am content to classify the classic *lottery case* – in which one truly believes one's single ticket in, say, a million-ticket lottery loses – as unsafe non-knowledge: although the odds of winning the lottery are minuscule, there are close possible worlds in which one wins. Space prevents detailed defense of this classification.

is at the house down the left road?<sup>41</sup> It seems that I don't know this. Is my safety condition met? Suppose the candidate  $C_{R-SAFE}$  here is: that-Judy-is-not-appeared-to-heads'ly. Is this  $C$  *indeed* safe? If this  $C$  were the case in the way described in JUDY COIN-FLIP, would  $C$  hold in all close possible worlds? No. That the flipped coin lands tails in our case has no (strong) bearing on what way the coin lands in close possible worlds; in particular, that the flipped coin lands tails in our case does not make it the case that the coin lands tails in all close possible worlds. And so we don't have a case of safe non-knowledge. Rather, it's, untroublingly, unsafe non-knowledge.<sup>42</sup>

HALLOWEEN PARTY – as with nearly all thought-experiments – is, of course, under-described. Clearly I am making mileage out of a prior decision in HALLOWEEN PARTY securing  $C$ 's (viz. that-I-do-not-appear-to-Judy-Michael'ly) holding in all close possible worlds. But suppose – as Comesaña does<sup>43</sup> – that the decision not to disguise myself as Michael was formed – as is, concededly, left open by HALLOWEEN PARTY – on the basis of a coin-flip landing tails (or conditional on my one ticket winning a million-ticket lottery). Call this PARTYGOER COIN-FLIP. Suppose the coin lands tails (or I win said lottery). Now, it's not so that if  $C$  were the case in the way described in PARTYGOER COIN-FLIP,  $C$  would hold in all close possible worlds. Result (*pace* Comesaña):<sup>44</sup> more of an intuitive pull to withhold knowledge. We have unsafe non-knowledge (as in JUDY COIN-FLIP).

Summary diagnosis: In all the cases we've considered so far there's *some* (however weak) initial intuitive appeal to ascribe knowledge – after all, all the cases have a source of knowledge (whether testimony or perception) operating successfully. As we fill in the cases it becomes clear that the relevant source only operates successfully dependently on some or other (non-trivial) condition being

---

<sup>41</sup> This case is found in Comesaña (“Unsafe,” 402). And one could construct a similar case in which Judy tells the truth conditional on it being the case that-Judy's-one-ticket-wins-a-million-ticket-lottery, and her ticket in fact wins said lottery.

<sup>42</sup> I give a like diagnosis, *mutatis mutandis*, of Alvin Goldman's FAKE BARNS (“Discrimination and Perceptual Knowledge,” *The Journal of Philosophy* 73 (1976): 771-791), and Ram Neta and Guy Rohrbaugh's two cases (“Luminosity and the Safety of Knowledge,” *Pacific Philosophical Quarterly* 85 (2004): 396-406). (To the extent that denying Neta and Rohrbaugh's cases involve knowledge is a bullet, I am prepared to bite it – cf. n.45 *infra*.) Though note the following putative difference between FAKE BARNS and Neta and Rohrbaugh's cases: the threat to knowledge in FAKE BARNS is *actual* – there really are fake barns around – whereas the threat in Neta and Rohrbaugh's (as in HALLOWEEN PARTY) is *purely counterfactual*.

<sup>43</sup> Comesaña, “Unsafe,” 402.

<sup>44</sup> Comesaña, “Unsafe,” 402.

the case. And the relevant condition, in each thought-experiment, might – it seems – very well not have been the case. Now we have an intuitive pull to withhold knowledge. As we fill in the cases further we discover – my contention – that our willingness to ascribe knowledge in this or that case is a function of whether or not the relevant condition, if it were the case in the way described in the thought-experiment under consideration, holds in all close possible worlds. In other words, it's a function of whether the relevant condition, *C*, is *safe*.

Indeed, on the back of this summary diagnosis, I'm open to persuasion – *contra* my initial diagnosis of HALLOWEEN PARTY at 2.5 *supra* – that, in HALLOWEEN PARTY, the condition that-I-do-not-appear-to-Judy-Micheal'ly is *not* safe. More descriptive information about the case pointing in this direction could come to light. Moreover, orderings of modal space are contentious. If this condition is not after all safe, discovery that it is not safe will, I suggest, be matched by – will generate – an intuitive pull to withhold knowledge.<sup>45</sup> We'd, untroublingly, have unsafe non-knowledge.

Throughout, I – following most leading proponents of safety – rely on an intuitive ordering of possible worlds and do not commit on any substantive account of orderings of possible worlds (such as David Lewis's).<sup>46</sup> Clearly, this leaves room for disagreement over whether a condition is safe (e.g. on account of context dependence and/or vagueness infecting the relevant subjunctive conditional which is being given a possible worlds analysis). But perhaps this is exactly what we should expect in hard cases.<sup>47</sup> It must be conceded, however, that it is the very fact that modal orderings are contentious which leads some philosophers to give accounts of knowledge which do not use modal conditions at all.

2.8. Objection 2: My proposal trivialises the safety condition, for almost every true belief will, on this objection, turn out to be safe. Consider, for instance, PARTYGOER COIN-FLIP, and grant that the condition that-I-do-not-appear-to-Judy-Michael'ly is not  $C_{R-SAFE}$ . That doesn't by itself show that the belief in question isn't safe, for there may be other  $C_{R-SAFES}$  relative to which the belief is safe. In this case, let the candidate condition be: that-the-party-is-at-Andy's-

---

<sup>45</sup> For a contrasting strategy to that adopted in this paper, see Williamson ("Critics," 305): "One may have to decide whether safety obtains by first deciding whether knowledge obtains, rather than vice-versa." Sloganistically, Williamson's is a 'knowledge first' strategy; mine (at least in hard cases) a 'safety first' strategy.

<sup>46</sup> David Lewis, "Counterfactual Dependence and Time's Arrow," *Nous* 13 (1979): 455-476.

<sup>47</sup> Cf. Tamar Gendler and John Hawthorne on the putative instability of knowledge-intuitions in hard cases ("The Real Guide to Fake Barns: A Catalogue of Gifts for your Epistemic Enemies," *Philosophical Studies* 124 (2005): 331-352).

house. This condition is, on this objection,  $C_{R-SAFE}$ . That-the-party-is-at-Andy's-house doesn't entail that the party is at the house down the left road, and thereby counts as non-trivial. And Judy's testimony does indicate the truth dependently on this condition. But we've classed PARTYGOER COIN-FLIP as a case of intuitive non-knowledge.<sup>48</sup>

Reply 2: But the condition that-the-party-is-at-Andy's-house is not (relevantly-) $C_{SAFE}$ . It's not the case that, if this C were the case *in the way described in PARTYGOER COIN-FLIP*, the party would be at Andy's house in all close possible worlds. The party is only at Andy's house in PARTYGOER COIN-FLIP thanks to a coin-flip landing tails (or my winning said lottery). And if, by contrast, this C is *stipulated to be* (relevantly-) $C_{SAFE}$ , the case is changed beyond all recognition and I don't see that the resultant case would be a genuine Gettier-case. That is, suppose, for contrast, the party *is* at Andy's house in all close possible worlds. *Now* is my belief that the party is at the house down the left road a clear case of non-knowledge? I don't think so.<sup>49,50</sup>

2.9. Objection 3: My proposal does not tell us *how to find*  $C_{R-SAFES}$ . Perhaps we're better off with Sosa's original proposal that – *modulo* no outright indication of truth – the putative knower must accept the indication 'guided by,' or 'on the basis of,' C. (Sosa's original proposal, though, is, of course, vulnerable to Comesaña's HALLOWEEN PARTY counterexample.)

Reply 3: I agree that no algorithm for finding  $C_{R-SAFES}$  is on offer. But: so what? I take it 2.4's safety principle states a (disjunctive) necessary condition on knowledge. It doesn't have epistemic pretensions to furthermore help us *identify*  $C_{R-SAFES}$ . Identifying such conditions is for (common-sense, philosophical) judgment to do (though this is not to say such identification will always be easy).

---

<sup>48</sup> This objection would putatively generalise to Gettier-cases like Keith Lehrer's NOGOT AND HAVIT ("Knowledge, Truth and Evidence," *Analysis* 25 (1965): 168-75), in which the subject's belief that *someone* in his office owns a Ford is safe dependently on the putative  $C_{R-SAFE}$ : that-Havit-owns-a-Ford. Again: that-Havit-owns-a-Ford doesn't entail that someone in the subject's office owns a Ford; only that-Havit-who-is-in-the-subject's-office-owns-a-Ford entails that.

<sup>49</sup> And in NOGOT AND HAVIT, the condition that-Havit-owns-a-Ford is, for all we're told in that case, not (relevantly-) $C_{SAFE}$ . If it's *stipulated to be*  $C_{SAFE}$ , it's less clear we have a genuine Gettier-case of non-knowledge – cf., *inter alia*, Peter Klein, "Useful False Beliefs," in *Epistemology: New Essays*, ed. Quentin Smith (Oxford: Oxford University Press, 2008), 25-61, for the possibility of knowledge inferred from falsehoods. As noted in 2.6, though, I don't claim to have set out a 'Gettier-proof' safety condition.

<sup>50</sup> Is the condition that-the-party-is-at-Andy's-house a candidate (complementary)  $C_{R-SAFE}$  *in HALLOWEEN PARTY*? To answer this, we need more information about the likelihood of Michael himself (and any other potential 'Michael-disguiser,' such that there be) talking to Judy at the crossroads.

2.4's safety principle is none the worse for leaving this epistemic task to judgment. Try plugging some non-trivial conditions into the relevant subjunctive conditional and then evaluate it. We might be pleasantly surprised – I conjecture – by the paucity of conditions – none? one? *just* more than one? – which turn out to be  $C_{R-SAFES}$  in this or that case.<sup>51</sup>

2.10. Objection 4: Whether a condition counts as (relevantly-)safe depends on how the condition and the facts that pre-date the condition are described. In JUDY COIN-FLIP, for example, the condition that-Judy-is-not-appeared-to-heads'ly does not seem to be safe, and (as a result) it is a case of unsafe non-knowledge. But what prevents us from describing the relevant condition as the condition that-Judy-is-not-appeared-to-heads'ly-given-the-fact-that-the-coin-lands-tails? This fact pre-dates the condition and, on this objection, guarantees that the condition holds in all close possible worlds. Using such a description, JUDY COIN-FLIP would come out as a case of either safe non-knowledge (which is troubling for my project) or safe knowledge (which is counterintuitive).

Reply 4: Objection 4 describes, not two different descriptions of one condition, but rather two different conditions – two ways of picking out different features of the world. Given a way close worlds are, we can fully expect two different conditions – two ways of picking out different features of the world – to differ in whether or not they're (relevantly-)safe.<sup>52</sup> As it happens, here, on a correct construal of the new condition, it shares the property of the condition in JUDY COIN-FLIP of failing to be safe (and so failing to be relevantly-safe), and thus the difficulties which would have arisen had we had a case of safety do not arise. (On a mistaken construal, we'll see, the new condition has different properties.)

Let me explain. The logical form of the new condition is, abbreviating, the following conditional:  $T \supset \sim APP H$ .<sup>53</sup> According to our safe condition schema (of 2.4 *supra*), to be safe a condition must 'obtain,' and 'hold' in all close possible worlds. To do this, a conditional must be non-vacuously true throughout these

---

<sup>51</sup> Some  $C_{R-SAFES}$  – in the event of there being more than one in a particular case – will, however, be *explanatorily superior* to others.

<sup>52</sup> Beyond the claim that if one has two ways of picking out different features of the world one has two different conditions, I don't commit on more substantive individuation criteria for conditions – that is, criteria for telling one numerically distinct condition from another. More specifically, I don't commit on whether Leibniz's law – the principle of the Indiscernibility of Identicals – holds for the *modal* property of (relevant-)safety (or the *logico-linguistic* property of logical form considered in the next paragraph). (Even more plainly, I don't need to commit on the status of the principle of the Identity of Indiscernibles.)

<sup>53</sup>  $T$  = the-coin-lands-tails;  $\sim APP H$  = Judy-is-not-appeared-to-heads'ly.

Mark McBride

worlds. And, while this conditional will not be false in any close possible worlds, it will go vacuously true – the coin will land heads – in some. We cannot, by diktat, stipulate that the coin lands tails in all close possible worlds: we are beholden to modal space. This condition, thus, is not safe. (If, mistakenly, one took non-falsity in all close possible worlds to be sufficient for a conditional to be a safe condition, this conditional, while safe, will not be *relevantly-safe* – consider the close worlds in which it goes vacuously true.)

Having said all this, let me concede that it *may be* that whether a condition counts as (relevantly-)safe *can depend* on how the condition is described. Return, for example, to HALLOWEEN PARTY. And suppose, with me, that the condition that-I-do-not-appear-to-Judy-Micheal'ly is relevantly-safe. But now also suppose that Judy happens to be the tallest person invited to Andy's party. On one plausible way of individuating conditions, the condition that-I-do-not-appear-to-the-tallest-person-invited-to-Andy's-party-Micheal'ly is the *same condition* as the one we've classed as relevantly-safe – it picks out the same features of the world – *just newly described*. But, equally plausibly, the newly described condition may fail to be (relevantly-)safe (cf. n.51 *supra*). But, even if all this is so: so what? A given belief will count as *safe* if there is *some description* of a condition under which the condition in question counts as relevantly-safe.

### 3. Conclusion

3.1. I haven't conclusively demonstrated that (2.4's) safety is a necessary condition on knowledge. I have, though, dismissed some cogent objections thereto.<sup>54</sup>

---

<sup>54</sup> Thanks to Lee Walters for stimulating discussion.



# MOOREAN SENTENCES AND THE NORM OF ASSERTION

Michael J. SHAFFER

ABSTRACT: In this paper Timothy Williamson's argument that the knowledge norm of assertion is the best explanation of the unassertability of Moorean sentences is challenged and an alternative account of the norm of assertion is defended.

KEYWORDS: Moorean sentences, knowledge, assertion, approximate truth

Recently there has been much interest in the topic of the norm(s) of assertion and this interest drives from a variety of sources. The debate concerning pragmatic encroachment on knowledge is one such source. So, the debate about whether or not pragmatic factors affect whether an agent knows or does not know has raised the issue of the proper norm for practical reasoning or acting. Those who endorse pragmatic encroachment on knowledge have typically defended the view that the proper norm of practical reasoning is knowledge. They defend the knowledge norm for practical reason. This has then further suggested that the proper norm for *assertion* is knowledge via what is known as the commonality thesis. The commonality thesis is just the idea that the proper norm of assertion is the same as the proper norm of practical reasoning.<sup>1</sup> Timothy Williamson in particular has defended the commonality thesis and the knowledge norm.<sup>2</sup> For Williamson the proper norm of both practical reasoning and assertion is knowledge. So, in its most elemental form, this principle is the following claim:

(KN-C) one should act on or assert a proposition, if and only if, it is known.

Both the knowledge norm of assertion and the knowledge norm of practical reasoning have been subjected to considerable criticism, but they have also been vigorously defended by some influential contemporary philosophers.<sup>3</sup> Timothy

---

<sup>1</sup> See Jessica Brown, "Fallibilism, and the Knowledge Norm for Assertion and Practical Reasoning," in *Assertion: New Philosophical Essays*, eds. Jessica Brown and Herman Cappelen (Oxford: Oxford University Press, 2011), 153-174.

<sup>2</sup> Timothy Williamson, *Knowledge and its Limits* (Oxford: Oxford University Press, 2000).

<sup>3</sup> See, for example, Jonathan Hawthorne, *Knowledge and Lotteries* (Oxford: Oxford University Press, 2004), Jonathan Hawthorne and Jason Stanley, "Knowledge and Action," *The Journal of Philosophy* 105 (2008): 571-590, Williamson, *Knowledge and its Limits*, Timothy Williamson, "Contextualism, Subject-Sensitive Invariantism and Knowledge of Knowledge," *The Philosophical Quarterly* 55 (2005): 213-235.

Williamson in particular defends the knowledge norm for assertion by appeal to its supposed explanatory power. More specifically, he argues that the knowledge norm of assertion is the best explanation of the unassertability of sentences of the form “p, but I do not believe that p.” In mounting this defense Williamson claims that such Moorean sentences are (1) unassertable and (2) that the best explanation of this fact is that knowledge is the proper norm of assertion. Here issue will be taken with this particular aspect of Williamson’s defense of the knowledge norm of assertion and it will be argued that his defense is predicated on a mistake concerning the proper norm of assertion and practical reasoning.

So why is the alleged unassertability of Moorean sentences supposed to support the knowledge norm of assertion? This is supposed to be the case because if asserting that p is governed by the norm of knowledge, then one should assert p, if and only if, it is true. Provided then that one accepts the view that knowledge entails belief one should assert that p, if and only if, p is believed. Thus to assert a Moorean sentences is to violate the knowledge norm of assertion. One ought not to assert that p when p is not believed because then it cannot be known. Consider the claim that “Obama is the President of the United States in 2012.” Suppose that Howard attempts to assert the following compound proposition:

(O) Obama is the President of the United States in 2012, but I do not believe it.

So, Howard perhaps utters the English sentence “Obama is the President of the United States in 2012, but I do not believe it.” What Howard is saying is widely supposed to be paradoxically odd – as originally noticed by Moore. However, Williamson alleges that this is the case because Howard is violating the knowledge norm of assertion. Asserting O involves the assertion of a compound proposition made up of the following two component propositions:

(OP1) Obama is the President of the United States in 2012.

(OP2) I do not believe that Obama is the President of the United States in 2012.

In attempting to assert O, Howard’s assertion of OP2 grates against his assertion that OP1. If O is properly asserted, then both OP1 and OP2 are known. But knowing OP1 implies the negation of OP2. In virtue of this observation Howard is then supposed to be *failing to make a real assertion*. What he is saying does not meet the standard for assertion because that standard is knowledge. So, according to Williamson, (in accordance with the orthodox view) Moorean sentences are unassertable, and this fact is explained by the knowledge norm of assertion.

There are a variety of criticisms that have been leveled against the knowledge norm of practical reasoning and if the commonality thesis is true, then

such criticisms should implicate the knowledge norm of assertion as well. Criticisms of the knowledge norm of action include those that challenge its sufficiency and its necessity. The most convincing of these criticisms concern the claim that knowledge is necessary for action. In other words they challenge the view that one ought to act on a proposition only if it is known. These criticisms have then given rise to a whole host of weaker suggestions concerning the proper norm for action, for the defenders of these views all agree that the knowledge norm of action is too strong. Recently, I have defended the view that the correct norm for action is as follows: where the choice is p-dependent,

(JBAT-PR) It is epistemically rational for S to employ p (appropriately) in S's practical reasoning  $\equiv$  it is at least the case that S is justified in believing that p is approximately true, and p is at least approximately true.<sup>4</sup>

This view was proposed in light of counterexamples that implicate both the knowledge norm and its other weaker cousins, such as those proposed by Ram Neta and Clayton Littlejohn.<sup>5</sup> It is important to notice that the justified belief component of the left hand side of the bi-conditional of JBAT-PR is qualified by an 'at least' qualification with its scope outside the doxastic operator. This is intentionally designed to capture the idea that the norm of practical reasoning involves at least S being justified in her belief that p is approximately true. This is then compatible with S's being justified in her belief that p is strictly true as well her being justified in her belief that p is only approximately true. We cannot just substitute S's is justified in believing that p is at least approximately true for S is justified in believing that p is true or S is justified in believing that p is approximately true without running into problems as demonstrated in my "Not-Exact-Truths, Pragmatic Encroachment and the Epistemic Norm of Practical Reasoning."<sup>6</sup> So that particular qualification is crucial. In the other conjunct in the left hand side of the bi-conditional p's being at least approximately true signifies that p is true *or* that p is approximately true.

So this much weaker principle captures a much more reasonable sense of the epistemic conditions on practical reasoning and it has two important virtues. First and foremost, it gets us the correct result in a wide variety of allegedly problematic cases. Second, this weak principle of the epistemic conditions on

---

<sup>4</sup> Michael Shaffer, "Not-Exact-Truths, Pragmatic Encroachment and the Epistemic Norm of Practical Reasoning," *Logos & Episteme* 3 (2012): 239-259.

<sup>5</sup> See Ram Neta, "Treating Something as a Reason for Knowledge," *Nous* 43 (2009): 684-699 and Clayton Littlejohn, "Must We Act Only on What We Know," *The Journal of Philosophy* 106 (2009): 463-473.

<sup>6</sup> Shaffer, "Not-Exact-Truths."

practical reasoning respects what a number of variously motivated philosophers have convincingly argued about epistemic rationality and inexact truth to a much greater extent than do any of the other proposals. This is interesting because the parties to the debate about pragmatic encroachment and the defenders of the knowledge norm of practical reasoning have by and large simply assumed some implicit philosophical or folk theory of rationality in the discussion of these ideas that ignores the practical rationality of inexact, partial or approximate truths. A number of other philosophers have recently and compellingly argued is that rational thinking and acting involves the use of approximations, idealizations and/or inexact truths.<sup>7</sup> That we are less than perfectly rational is, of course, not at all a new recognition and the debates between the various defenders of the heuristics and biases tradition, the ecological rationality model and more traditional views attests to this.<sup>8</sup> We do not need to go into the details of these debates here, but what they strongly suggest is that we sometimes base both practical and theoretical reasoning on propositions that are not-exactly-true and that we can be efficient problem solvers and deliberators in even though we do not reason in maximally accurate ways on the basis of exact truths.<sup>9</sup> We often trade degrees of accuracy with respect to truth for things like efficiency, ease of use and generality without compromising rationality or success. There is nothing irrational about employing approximate, partial or inexact truths in our practical reasoning and JBAT-PR reflects this whereas the stronger alternatives alluded to above simply do not do so. In that respect JBAT-PR is more realistic. What is then interesting for the issue at hand is that if the commonality thesis is true and JBAT-

---

<sup>7</sup> See Catherine Elgin, *Considered Judgment* (Princeton: Princeton University Press, 1996), Catherine Elgin, "True Enough," *Philosophical Issues* 14 (2004): 113-131, Nancy Cartwright, *How the Laws of Physics Lie* (Oxford: Oxford University Press, 1983), Elijah Millgram, *Hard Truths* (London: Wiley-Blackwell, 2009), Paul Teller, "Twilight of the Perfect Model," *Erkenntnis* 55 (2001): 393-415, Paul Teller, "The Finewright Theory," in *Nancy Cartwright's Philosophy of Science*, eds. Stephan Hartmann, Carl Hoefer, and Luc Bovens (London: Routledge, 2008), 91-116, Mark Wilson, *Wandering Significance* (Oxford: Oxford University Press, 2006), and William Wimsatt, *Re-engineering Philosophy for Limited Beings: Piecewise Approximations to Reality* (Cambridge: Harvard University Press, 2007).

<sup>8</sup> See, for example, Renée Elio, ed., *Common Sense, Reasoning and Rationality* (Oxford: Oxford University Press, 2002), Massimo Piattini-Palmarini, *Inevitable Illusions* (New York: Wiley, 1994), Gerd Gigerenzer, *Adaptive Thinking* (Oxford: Oxford University Press, 2000), Michael Shaffer, "Decision Theory, Intelligent Planning and Counterfactuals," *Minds and Machines* 19 (2009): 61-92, and Michael Shaffer, *Counterfactuals and Scientific Realism* (New York: Palgrave MacMillan, 2012).

<sup>9</sup> See Shaffer, "Decision Theory, Intelligent Planning and Counterfactuals."

PR is the proper norm for acting, then JBAT-A should be the proper norm for asserting. We can state this as follows:

(JBAT-A) It is epistemically rational for S to assert  $p \equiv$  it is at least the case that S is justified in believing that  $p$  is approximately true, and  $p$  is at least approximately true.

This is especially interesting because recognizing JBAT-A as the proper norm for assertion implies that Moorean sentences can be assertable and that Williamson's defense of the knowledge norm of assertion on the basis that it best explains the unassertability of Moorean sentences fails.

Consider the following case:

MATH1: Joe is an elementary school mathematics teacher and he is teaching his students about geometry. In the course of teaching his students how to calculate the area of a circle via the use of the equation  $A = \pi r^2$  he tells his students the value of  $\pi$ . Specifically, he says that  $\pi = 3.14159$ . Joe works out several examples and the students learn how to do this for themselves.

MATH1 seems to be an utterly pedestrian and realistic case. There is nothing at all odd or unusual about it and such actual cases of precisely this sort have been repeated many, many times in many places. However, in MATH1 Joe asserts that  $\pi = 3.14159$  via his uttering the English sentence "the value of pi is 3.14159." Now, strictly speaking, this is not true, but it is close enough for the purposes of Joe and his students. But, according to defenders of the knowledge norm of assertion, Joe is violating the proper norm of assertion. So, he is either acting inappropriately or he is failing to make an assertion. However, neither of these options is at all plausible. Joe is asserting a proposition in a perfectly ordinary sense and his assertion seems entirely appropriate in the context in which he is making that assertion. He is making an assertion that involves a not-exactly-true or approximately true proposition, and this seems entirely reasonable in the case as it is described. So, there is clearly something wrong with the knowledge norm of assertion, but it is not simply a case where one can reasonably bite the bullet and claim that Joe's behavior is epistemically irrational, as might be the case if he were baldly asserting a falsehood that was not approximately true. As such, it seems to be the case that it can be epistemically rational to assert some falsehoods when they are approximately true. Let us then consider the following slight modification of MATH1:

MATH2: Joe is an elementary school mathematics teacher and he is teaching his students about geometry. In the course of teaching his students how to calculate the area of a circle via the use of the equation  $A = \pi r^2$  he tells his students the value of  $\pi$ . Specifically, he says that  $\pi = 3.14159$ . Joe works out several examples

Michael J. Shaffer

and the students learn how to do this for themselves. After class he winks at his best student Jane, who is aware that his assertion about the value of pi is only an approximation, and says “the value of pi is 3.14159, but I don’t believe it.”

The Moorean sentence in MATH2 has the supposed air of paradox about it that many have attributed to Moorean sentences, but this is only a *prima facie* problem given JBAT-A. If, as we have seen in MATH1, it is epistemically appropriate to assert approximately true propositions that one is at least justified in believing to be approximately true, then there is nothing wrong with Joe’s assertion in MATH2. Let us work this out in more detail. In MATH2 Joe is asserting the following compound proposition:

(C) the value of pi is 3.14159, but I don’t believe it.

As in the case of the Obama assertion, asserting C involves the assertion of a compound proposition made up of the following two component propositions:

(CP1) The value of pi is 3.14159.

(CP2) I do not believe that the value of pi is 3.14159.

In attempting to assert C, Joe’s assertion of CP1 might initially appear to grate against his assertion that CP2, but this dissonance vanishes when the assertion is understood in terms of JBAT-A. If C is properly asserted with respect to JBAT-A, then both CP1 and CP2 are at least approximately true and it is at least the case that Joe is justified in believing that they are approximately true. In the case of CP1 this is because that proposition is approximately true and Joe is justified in believing that it is approximately true. In the case of CP2 this is because that proposition is true and he is justified in believing that it is true, so he doesn’t really believe that the value of pi is, strictly speaking, 3.14159. So, the context of the assertion of CP1 in MATH2 renders that assertion epistemically rational, despite its being an approximation, and this is fully compatible with the simultaneous epistemically rational assertion of CP2. In virtue of this observation Joe is making a real and fully coherent assertion in asserting C, despite its superficially paradoxical character. What he is saying meets the JBAT-A standard for assertion. As a result Williamson’s, claims that Moorean sentences are unassertable and this fact is (best) explained by the knowledge norm of assertion are not compelling. It is simply false that all Moorean sentences are unassertable and so the knowledge norm *cannot* be the best explanation of the unassertability of such sentences.

# PREEMPTING PARADOX

John TURRI

ABSTRACT: Charlie Pelling has recently argued that two leading accounts of the norm of assertion, the truth account and a version of the knowledge account, invite paradox and so must be false. Pelling's arguments assume that an isolated utterance of the sentence "This assertion is improper" counts as making an assertion. I argue that this assumption is questionable.

KEYWORDS: paradox, assertion, self-reference, knowledge account of assertion, truth account of assertion, Charlie Pelling

Charlie Pelling has recently argued that two leading accounts of the norm of assertion, the truth account (TA) and a version of the knowledge account (BKA), invite paradox and so must be false.<sup>1</sup> Both of Pelling's arguments focus on an isolated utterance of the sentence,

(A1) This assertion is improper.

Each argument assumes that to utter A1 is to make an assertion. But, I will argue, that assumption is questionable. I will also explain away contrary intuitions.

My response to Pelling differs fundamentally from Jeff Snapper's.<sup>2</sup> Snapper accepts that uttering A1 amounts to asserting and contends that an adequate response to Pelling "must" be analogous to one or another of the responses to the Liar Paradox in the literature. Responses include appealing to vagueness, "adopting a non-classical logic for assertions" or "restricting the T-schema ... to assertions that do not use metalinguistic predicates." Snapper might be right that one or more of those responses is workable. But my discussion shows that we aren't "required" to go that route, because we may simply reject the root assumption that we're dealing with an assertion to begin with. It is advantageous to also have this simpler response at our disposal.

I'll begin by briefly introducing Pelling's arguments. Pelling's argument against TA is elegant and impressively brief.

The truth account of assertion states that an assertion is proper if and only if it is true. Suppose I assert that 'this assertion is improper'. If my assertion is true, then

---

<sup>1</sup> Charlie Pelling, "A Self-Referential Paradox for the Truth Account of Assertion," *Analysis* 71, 4 (2011): 688, "Paradox and the Knowledge Account of Assertion," *Erkenntnis* (2012), DOI: 10.1007/s10670-012-9360-0.

<sup>2</sup> Jeff Snapper, "The Liar Paradox in New Clothes," *Analysis* 72, 2 (2012): 319-322.

John Turri

it is improper. If it is false, then it is proper. Either way, it constitutes a counterexample to the truth account of assertion.<sup>3</sup>

The argument assumes that to utter A1 is to make an assertion. The argument against BKA is more complex but for present purposes the important point is that it also assumes that to utter A1 is to make an assertion. The argument begins, “Suppose I make the self-referential assertion that ‘this assertion is improper’.”<sup>4</sup>

Pelling offers no argument in support of the crucial assumption that to utter A1 is to make an assertion. Perhaps it will be thought that the assumption is intuitive. But I don’t find it intuitive, and there is reason to be suspicious of it, as I will now explain.

From the fact that a self-referential utterance describes itself as a speech act of a certain type, it doesn’t follow that it is a speech act of that type. It doesn’t even make it likely. In fact, utterances that share A1’s profile seem *unlikely* to be of the relevant type. To begin with, notice that to utter either of these sentences,

(C1) This command is improper.

(C2) Obey this command.

is not to issue a command, where ‘this command’ purportedly self-refers. Aside from amusement, the most natural reaction to such utterances is to wonder, “What command?” Consider also the sentences,

(Q1) This question is improper.

(Q2) Is this question improper?

It’s clear that uttering Q1 is not a way of posing a question, and it’s not clear that uttering Q2 is either. Again, aside from amusement, the natural first reaction is to wonder, “What question?”

My reaction to an utterance of A1 follows precisely that pattern: I’m left wondering, “What assertion?”

It might be objected that I have unfairly compared assertions to commands and questions, which differ from assertions in direction of fit and purpose. Even limiting ourselves to illocutions that are “in the same line of business” as assertions<sup>5</sup> – that is, the family of ‘assertives’ or ‘alethic speech acts’ – similar examples are easy to come by.

---

<sup>3</sup> Pelling, “A Self-Referential Paradox.”

<sup>4</sup> Pelling, “Paradox and the Knowledge Account.”

<sup>5</sup> John Searle, *Expression and Meaning* (Cambridge: Cambridge University Press, 1979), 13. See also John Turri, “Epistemic Invariantism and Speech Act Contextualism,” *Philosophical Review* 119, 1 (2010): 77-95.



- (G1) This guess is improper.  
 (J1) This conjecture is improper.  
 (R1) This guarantee is improper.  
 (B1) This boast is improper.  
 (H1) This hypothesis is improper.  
 (N1) This announcement is improper.  
 (D1) This declaration is improper.

These are not ways of guessing, conjecturing, guaranteeing, boasting, hypothesizing, announcing, or declaring. We should be skeptical that uttering A1 is a way of asserting.

It might superficially appear that ‘this assertion’ in A1 refers, and that to utter A1 is to make an assertion. But that’s only because ‘this assertion’ isn’t naturally understood as an attempt at self-reference. Instead it’s naturally understood as anaphorically referring to a contextually salient, antecedently existing assertion. Similarly, it can appear that ‘this command’ in C1 refers, and that to utter C1 is to issue a command. But that’s only because it too is naturally understood as referring to a contextually salient, antecedently existing command. So not only is there reason to be suspicious of the crucial, undefended assumption, there is an explanation for why people might unwittingly find it intuitive.

It might be objected that assertion is a performative, so we ought to be able to *make it the case that* we assert by uttering A1.<sup>6</sup> We need only use the right formulation in an appropriate context. And if we can assert by uttering A1, then Pelling can run his arguments featuring an appropriate example. In response, this objection fails because in order to performatively assert by uttering “I hereby assert...,” *one must indicate the proposition that one thereby asserts*. The typical way to do this is to replace the ellipsis with a declarative sentence. “I hereby assert,” all by itself, doesn’t magically produce an assertion. And “I hereby assert *this*” fares no better.<sup>7</sup> It works the same way for commanding, questioning, guessing, declaring, and all the others discussed earlier.

Despite those general reasons to be skeptical that uttering A1 amounts to asserting, I observe that at least some felicitous self-referential illocutions seem possible. For example, in the course of teaching someone the language, one might

---

<sup>6</sup> John Austin, *How to Do Things with Words* (Oxford: Oxford University Press, 1962). Set aside the fact that Austin (*How to Do Things*, 5) denied that a performative ‘describes’ or is ‘true or false,’ since he was wrong about that.

<sup>7</sup> I limit my remarks to occasions where ‘this’ purportedly self-refers, of course.

John Turri

say, “This is an example of an assertion.” Or someone learning the language might ask, “Is this asking a question?” In each case, ‘this’ arguably self-refers to what the speaker is doing in uttering those words. Will the following serve Pelling’s purposes, then?

(A2) This is an example of an improper assertion.

No, it won’t. For although it self-refers, it doesn’t *paradoxically* self-refer. To utter A2 is to make *two* assertions, namely:

(A2a) This is an example of an assertion.

(A2b) It [i.e. A2a] is improper.

A2a is true, known to be true, and proper to assert, so it can’t cause trouble for TA or BKA. A2b is false and improper to assert, so it can’t cause trouble either.

In conclusion, although Pelling’s arguments are elegant and intriguing, we’ve not yet been given a genuine example of a self-referential assertion apt to generate a paradox for either TA or BKA. We’re not faced with a straightforward counterexample. At this point the burden shifts to those who would defend the crucial assumption. Moreover, we should bear in mind the considerable theoretical and empirical evidence strongly favoring a factive account of the norm of assertion.<sup>8</sup> If defending Pelling’s crucial assumption requires introducing theoretical apparatus less compelling than the independent evidence favoring a factive account, then we should accept my treatment of A1, and Pelling’s argument is overcome.<sup>9</sup>

---

<sup>8</sup> For example, Timothy Williamson, *Knowledge and Its Limits* (Oxford: Oxford University Press, 2000), ch. 11, John Hawthorne, *Knowledge and Lotteries* (Oxford: Oxford University Press, 2004), Jonathan Schaffer, “Knowledge in the Image of Assertion,” *Philosophical Issues* 18 (2008): 1-19, Matthew Benton, “Two More for the Knowledge Account of Assertion,” *Analysis* 71 (2011): 684-687, John Turri, “Prompting Challenges,” *Analysis* 70 (2010): 456-462, John Turri, “The Express Knowledge Account of Assertion,” *Australasian Journal of Philosophy* 89 (2011): 37-45, John Turri, “Knowledge Guaranteed,” *Noûs* DOI:10.1111/j.1468-0068.2011.00849.x, John Turri, “Promises to Keep: Speech Acts and the Value of Reflective Knowledge,” *Logos and Episteme* 2 (2011): 583-590, John Turri, “Pyrrhonian Skepticism Meets Speech-Act Theory,” *International Journal for the Study of Skepticism* 2 (2012): 83-98, John Turri, “Knowledge and Suberogatory Assertion,” under review, John Turri, “The Test of Truth: An Empirical Investigation of the Norm of Assertion,” under review.

<sup>9</sup> For helpful feedback, I thank Matt Benton, Dave DeVidi, Tim Kenyon, Rachel McKinnon, Charlie Pelling, and Angelo Turri. This research was supported by the Social Sciences and Humanities Research Council of Canada, the National Endowment for the Humanities, a British Academy/Association of Commonwealth Universities Grant for International Collaboration, and an Ontario Early Researcher Award.

## **REVIEWS**



**Ian Evans, Nicholas D. Smith, *Knowledge* (Cambridge: Polity Press, 2012)**

Reviewed by Corina Daba-Buzoianu<sup>1</sup>

The book is not only an up-to-date introduction to the issues of knowledge and epistemology, but also an interesting perspective of what knowledge means for humans and non-human animals. A great deal of attention is given to the current trends on the subject matter, so the reader has access not only to the traditional approaches, but also to the newest theories. Moreover, Ian Evans and Nicholas D. Smith's book frames a theory of knowledge. Structured in nine chapters, the book *Knowledge* proposes the reader in the end a very interesting and extremely well written perspective of knowledge in the human race and not only.

In the first chapter, "Introduction to the Theory of Knowledge," the two authors discuss the epistemological issue of knowledge, and inevitable get to intuition, which they try to eliminate as much as possible. Using Socrates' ideas, Evans and Smith say that in order to turn beliefs into knowledge we need *warrant*, something that differentiates knowledge from other forms of true beliefs. The general idea is that knowledge can be analyzed into more fundamental mental, environmental, and epistemic concepts, especially beliefs, truth and warrant. Discussing on *kinds of knowledge*, Evans and Smith criticize the importance that some authors give to propositions and propose that we conceive knowledge strictly in terms of information. They prefer the informational dimension of knowledge as they valorize the concepts and theories which state that animals are able to have certain degree of knowledge. Their argumentation is based on the fact that non-linguistic animals process information, although they don't use information and they don't process it through language and propositions. What is interesting in this case is the fact that Evans and Smith admit that knowledge depends on mental representations and, as far as we know, non-human animals don't reach mental representation. This problem remains unanswered throughout the book.

Highly influenced by James Pryor's work, Evans and Smith concentrate in their second chapter on Descartes, whom they refer to as an ambitious anti-skeptic, at the same time proposing a moderate anti-skepticism. As we know, Descartes' project discusses the matter of false beliefs and knowledge, aiming to find something about which we can be certain and which would serve as the

---

<sup>1</sup> National University of Political Studies and Public Administration, Bucharest.

foundation of knowledge. Evans and Smith consider that Descartes embraces an ambitious anti-skepticism approach as he tries to identify which are the things about which we cannot be deceived, stating that we can discuss about indubitable knowledge. On the other hand, the two authors ask “how we can know things *in spite* of the possibility that we might be deceived?” (p. 23). The second chapter shows not only the limits of Descartes as an ambitious anti-skeptic, but also the limits of Descartes’ project in terms of knowledge. In one way, the critique of Evans and Smith is not new, as Rudolf Carnap demonstrated in 1933 that the Cartesian reasoning contains a logical error. What Evans and Smith bring is the new perspective on Descartes’ fallacious demonstration. If Carnap made in his *L’ancienne et la nouvelle logique* a logical analysis of language and showed that the French philosopher’s *Cogito, ergo sum* contains a profound logical error generated by the wrong use of the verb ‘to be’ in language, Evans and Smith put Descartes’ reasoning through an epistemological analysis and show that he disregarded the matter of existence *at a time*. Using his method, say the two authors, “perhaps Descartes can establish his own existence, but it is existence *at that time*. How does one establish one’s existence *through time*, and have the same certainty of that continuing existence?” (p. 32).

The pressure of the skeptical paradox is highly visible in the third chapter, “Contextualism”:

1. I know that I have two hands.
2. Since my knowing that I have two hands entails that I am not deceived about that (a brain in a vat or deceived by Descartes’ demon, etc.), and I also know *this* entailment, then if I know that I have two hands, then I also know I am not being deceived.
3. I don’t know that I am not being deceived.

No doubt, as the authors say, this skeptical paradox shaped in this trilemma intrigues as at least one statement has to be false. The big challenge is to figure out which statement must be eliminated. A way of solving the problem is to refer to contextualism, as the verb ‘to know’ from the trilemma is *context sensitive*. In fact, Evans and Smith show that in terms of philosophy of language different words are sensitive to different features of the context. Something we say can be true in a context and false in another. Following the chapter we see particularities of contextualism, presented by Evans and Smith as quantifier domains, gradable adjectives and knowledge contextualism. Searching for a complex view of contextualism, Evans and Smith use Stewart Cohen’s perspective as an internalist, pointing that Cohen thinks of warrants in terms of *rationality* and *justification*. On the other hand, we see Timothy Williamson’s perspective on contextualism,

stating that contextualists postulate a semantic blindness. In this respect, Evans and Smith answer to Williamson, saying that he offers a “fallibilist invariantist explanation of our intuitions. If his explanation is as good as, or better than, the contextualists’, then we have been given no compelling reason to accept contextualism” (p. 69).

“Warrant of Justification,” the fourth chapter, explores the epistemological internalist approach of warrants as justification. In the authors’ opinion, justification is a relation between states *internal* to the mind of the one justified. It is of course the case of providing evidence or reasons for the beliefs in question. Justification, just like information, comes in degrees, and in this specific aspect, Evans and Smith show that it is important that when we consider different accounts of justification as warrant, we must have clear three questions: “is the justification a matter of justifiable or justified belief?; is the justification subjective or objective?; and is the justification really adequate for warrant?” (p. 77). Also, the fourth chapter discusses in an interesting way some objections to traditional foundationalism, pointing Fumerton, Bonjour, and DePaul’s perspectives on the matter. Also, “Warrant of Justification” is a good presentation of Cohen’s approach on *easy knowledge*.

Evans and Smith point the matter of defeated justification in chapter five “Justification, Defeaters, and Basing,” stating that for the epistemological paradigm it is necessary that justification be *undefeated*. Also, an important aspect vividly discussed by Evans and Smith is the ‘basing relation,’ useful in distinguishing between a belief that is justifiable and one that is justified. The difference showed in the book is that “a belief must be *based on* the evidence that makes it justifiable.” (p. 111) Regarding the basing relation, the two authors provide a most up-to-date introduction on the matter, as they show casual theories of basing and doxastic theories of the basing relation. Also, the book presents Keith Lehrer’s perspective on basing relation, pointing that Lehrer challenges the connection between justified belief and the basing relation, and this goes hand in hand with Evans and Smith’s intuition that for a belief to be justified by some reasons, it must be based on them.

The sixth chapter, “Externalist Theories of Warrant,” considers theories quite different from what we have seen in the last chapters. The most important differentiation is connected to the way these theories refer to warrant. If until now we saw theories that conceived warrant as justifications, now we deal with theories that consider warrant as cognitive processes and the relation that comes between the knower and the known. Therefore, unlike internalists, externalists consider that warrant derives from “facts about the cognition in question that are

external to the epistemic agent's awareness." (p. 124) The chapter starts from Alvin Goldman's question "What is Justifiable Belief?" and states that the answer should be searched in the result of a reliable belief-forming-process, perspective that we call reliabilism. Discussing the externalist theories of warrant, Evans and Smith use Robert Nozick's tracking theory to argue about abstract knowledge, stating that "properly understood, then, the tracking theory (TT) explains why many ordinary cases of knowledge are, in fact, knowledge." (p. 131)

Within the seventh chapter we reach the "Epistemic Evaluation." Here Evans and Smith discuss Jaegwon Kim's writings about the limits of externalism, where he shows that externalists do not explain the evaluative nature of justification, or how or why the satisfaction of certain epistemic norms might be required for knowledge. The chapter shows that we must have norms to value judgments. Epistemic norms are fundamental as they are seen often as advices about how to reach true beliefs. The chapter states that epistemic norms are both categorical and instrumental. At the end of the chapter, after comparing the two approaches and underlining their potential, Evans and Smith state that in their belief "a complete theory of knowledge will accommodate deontological claims about what we ought to believe, consequentialist claims about success in achieving certain goals, procedural claims about which epistemic practices should be followed, and also claims about what does and does not count as epistemically virtuous." (p. 161)

Chapter eight and nine end the book in a very interesting way, talking about "A New Theory of Knowledge, Part 1: The Desiderata and Non-Human Knowledge" and "A New Theory of Knowledge, Part 2: Human Knowledge." These two chapters not only provide a powerful analysis of knowledge, but also a theory of knowledge, remarkably simple in form, as the authors say. Once again, considering that knowledge is being informational rather than propositional, Evans and Smith have five desiderata for an adequate theory of knowledge, stating that non-human animals may achieve knowledge. Evans and Smith's desiderata stand along the externalist conception of warrant, but add a "way to include the requirement that appropriate epistemic evaluations also be satisfied, for knowledge." (p. 181)

As Evans and Smith mention, their approach is not far from the latest research in animal cognition, the study of cognitive and communication behavior of animals. The new theory of knowledge regarding the humans starts and ends with the justification requirement as "we require justification for knowledge in some cases, because that is what is required for the cognitive capacities that are our *natural endowment* to function properly." (p. 183) Also, Evans and Smith



show that, contrary to Plantinga, we will best understand the fact that we have the cognitive capacities that we do as a *natural endowment*. Their presence in us must be explained not by an appeal to some supernatural force, but rather as the result of natural selection. Therefore, the two authors conclude that the account they provide includes elements of internalism, justification and epistemic evaluation and is, therefore, naturalistic.

Finally, in their book *Knowledge* Evans and Smith state that knowledge is what is produced by a cognizer when that cognizer uses “veridically reliable cognitive processes” which function adequate in an environment (p. 203). The ability to reason has an important role in the reliability for our cognitive functioning. But, one of the last statements of the book speaks for itself: “accordingly, knowledge for human beings is the same in kind as knowledge for other sorts of animals: it is what is achieved when our veridically reliable cognitive capacities function properly.” (p. 203) In one way, Evans and Smith are right. But, they may be right just because they don’t ask a fundamental question regarding knowledge: does knowledge involve self-consciousness? And if so, how do non-human animals reach it, if ever?



## NOTES ON THE CONTRIBUTORS

**Christopher Bobier** is a graduate student at the University of California, Irvine. His main areas of research are in metaphysics, epistemology and philosophy of science. His most recent publication is “God, Time and the Kalam Cosmological Argument” (forthcoming in *Sophia*, 2013). Contact: cbobier@uci.edu.

**Rachael Briggs** is a Research Fellow in the School of Philosophy at the Australian National University. Her interests include formal epistemology, metaphysics (particularly the metaphysics of chance), and value theory (particularly theories of wellbeing). Two of her articles are recognized in *Philosopher's Annual* list of the 10 best articles in philosophy published each year: “Distorted Reflection” (*Philosophical Review*, 2009), and “Decision Theoretic Paradoxes as Voting Paradoxes” (*Philosophical Review*, 2010). Contact: formal.epistemology@gmail.com.

**Arnold Cusmariu** has published on topics in metaphysics, epistemology, the philosophy of mathematics, the philosophy of mind and aesthetics in *Philosophical Studies*, *Analysis*, *Southern Journal of Philosophy*, *Erkenntnis*, *Australasian Journal of Philosophy*, and *Grazer Philosophische Studien*. Abstracts of his publications are available at <http://philpapers.org/s/Arnold%20Cusmariu>. His most recent publication is “The Structure of an Aesthetic Revolution” (*Journal of Visual Arts Practice*, 2009), which lays out the philosophical foundations of his work as a sculptor. An article titled “Baudelaire’s Critique of Sculpture” was presented in 2011 at meetings of the American Society for Aesthetics in California, Pennsylvania and Florida. Also a screenwriter, Dr. Cusmariu’s scripts are available at [www.zoetrope.com](http://www.zoetrope.com). Contact: bravo323@gmail.com.

**Barry Lam** is Assistant Professor in the Department of Philosophy at Vassar College. He primarily works in epistemology and the philosophy of language. Some of his current publications are “The Rationality of Belief Invariance in Light of Peer Disagreement” (*Philosophical Review*, 2011) and “Calibrated Probabilities and the Epistemology of Disagreement” (forthcoming in *Synthese*). Contact: balam@vassar.edu.

**Mark McBride** is Assistant Professor at the National University of Singapore. Mark has written on diverse topics in epistemology, ethics, and legal philosophy. He published in *Logos & Episteme* “A Puzzle for Dogmatism” and “Evidence and Transmission Failure” (both in 2011). For more information on Mark's work, please visit his website: <https://sites.google.com/site/markmcbride1978/>. Contact: markmcbride1978@gmail.com.

**Rachel McKinnon**, PhD, is a lecturer in the Department of Philosophy at the University of Waterloo. Her primary areas of research are epistemology and philosophy of language, particularly the norms of assertion. Her research also includes work in action theory, decision theory, meta-ethics, metaphysics, and gender issues. Her papers include “The Supportive Reasons Norm of Assertion” (*American Philosophical Quarterly*, forthcoming), “Irkesome Assertions” (with John Turri, *Philosophical Studies*, forthcoming), and “How Do You Know That 'How Do You Know?' Challenges a Speaker's Knowledge?” (*Pacific Philosophical Quarterly*, 2012).

**Daniel Nolan** is Professor of Philosophy in the School of Philosophy at the Australian National University. He is interested in many areas of philosophy, but particularly metaphysics, philosophy of science, philosophy of logic and language, and metaethics. He is the author of *David Lewis* (Acumen, 2005) and *Topics in the Philosophy of Possible Worlds* (Routledge, 2002). Contact: Daniel.Nolan@anu.edu.au.

**Luis Rosa** is a doctoral researcher at Pontifícia Universidade Católica do Rio Grande do Sul, Brazil. His main interests lie in the theories of epistemic justification, epistemic logic and artificial intelligence. His actual research is about puzzles of epistemic defeasibility. He is editor and author of the blog *FsOpHo*, dedicated exclusively to epistemology and logic. Contact: fsopho@gmail.com.

**Michael J. Shaffer** is Associate professor of philosophy at St. Cloud State University. His main areas of research interest are in epistemology, logic and the philosophy of science, and he has published many articles on various topics in these areas. He is the secretary and treasurer of the Central States Philosophy Association, is the co-editor of *What Place for the A Priori?* (Open Court, 2011), and is the author of *Counterfactuals and Scientific Realism* (Palgrave-MacMillan, 2012) and *The Experimental Turn and the Methods of Philosophy* (Routledge, forthcoming). Contact: mjshaffer@stcloudstate.edu.

**Gabriel Târziu** is currently a postdoctoral researcher for the Romanian Academy – Iași Branch. He received his M.A. in theoretical philosophy from the Faculty of Philosophy, University of Bucharest, in 2005, and continued his graduate studies in the same institution, where he received his Ph.D. in January 2010, with a thesis on the philosophy of mathematics. He has a wide interest in topics related to the metaphysical problem of realism, and he specializes in the history and philosophy of science, especially philosophy of mathematics and the relation between mathematics and science. His recent studies include “Quine’s Argument for Mathematical Realism,” “Mathematics, Science and Scientific Realism,” and “The Influence of Social Factors on Scientific and Mathematical Knowledge.” Contact: gabi\_tarziu@yahoo.com.

**John Turri** is Assistant Professor of Philosophy at the University of Waterloo and current holds an Early Researcher Award from the Ontario Ministry of Economic Development and Innovation. He specializes in epistemology, philosophy of language, experimental philosophy, value theory, philosophy of mind, and metaphysics. His publications include, “On the Regress Argument for Infitism” (*Synthese*, 2009), “Epistemic Invariantism and Speech Act Contextualism” (*Philosophical Review*, 2010), “The Express Knowledge Account of Assertion” (*Australasian Journal of Philosophy*, 2011), “Manifest Failure: The Gettier Problem Solved” (*Philosophers’ Imprint*, 2011), “Mythology of the Factive” (*Logos & Episteme*, 2011), “Knowledge Guaranteed” (*Nous*, forthcoming), “Liberal Thinking” (*Australasian Journal of Philosophy*, forthcoming), and “A Conspicuous Art: Putting Gettier to the Test” (*Philosophers’ Imprint*, forthcoming). Contact: john.turri@gmail.com.

**Gal Yehezkel** is a lecturer in Philosophy at the Department of Liberal Arts at Sapir Academic College, and a member of the Department of History, Philosophy and Judaic Studies at the Open University of Israel. Among his publications are “Objectivity and Natural Laws” (*Analysis and Metaphysics*, forthcoming), “McTaggart, the Flow of Time, and the Disanalogy between Time and Space” (*Kriterion*, 2009), and “Self-Consciousness, Objectivity, and Time” (*Metaphilosophy*, 2008). Contact: Yehezkel.G@gmail.com.



## ***LOGOS & EPISTEME: AIMS & SCOPE***

*Logos & Episteme* is a quarterly open-access international journal of epistemology that appears in printed and on-line version at the end of March, June, September, and December. Its fundamental mission is to support and publish various current reflections and researches that aim at investigating, analyzing, interpreting or philosophically explaining the human knowledge in all its aspects, forms, types, dimensions or practices.

For this purpose, the journal will publish articles, reviews or discussion notes focused as well on problems concerning the general theory of knowledge, as on problems specific to the philosophy, methodology and ethics of science, philosophical logic, metaphilosophy, moral epistemology, epistemology of art, epistemology of religion, social or political epistemology, epistemology of communication. Studies in the history of science and of the philosophy of knowledge, or studies in the sociology of knowledge, cognitive psychology, and cognitive science are also welcome.

The journal intends to promote all methods, perspectives and traditions in the philosophical analysis of knowledge, from the normative to the naturalistic and experimental, and from the Anglo-American to the continental or Eastern.

The journal accepts for publication texts in English, French and German, which satisfy the norms of clarity and rigour in exposition and argumentation.





# NOTES TO CONTRIBUTORS

## 1. Accepted Papers

The journal accepts for publication articles, discussion notes and book reviews submitted exclusively to *Logos & Episteme* and not published, in whole or substantial part, elsewhere. The editors of *Logos & Episteme* reserve the right to refuse all future papers belonging to the authors who fail to observe this rule.

## 2. Submission Address

Please submit your manuscripts electronically at: [logosandepisteme@yahoo.com](mailto:logosandepisteme@yahoo.com). Authors will receive an e-mail confirming the submission. All subsequent correspondence with the authors will be carried via e-mail. When a paper is co-written, only one author should be identified as the corresponding author.

## 3. Paper Size

The articles should normally not exceed 12000 words in length, including footnotes and references. Articles exceeding 12000 words will be accepted only occasionally and upon a reasonable justification from their authors. The discussion notes must be no longer than 3000 words and the book reviews must not exceed 4000 words, including footnotes and references. The editors reserve the right to ask the authors to shorten their texts when necessary.

## 4. Manuscript Format

Manuscripts should be formatted in Rich Text Format file (\*.rtf) or Microsoft Word document (\*.docx) and must be double-spaced, including quotes and footnotes, in 12 point Times New Roman font. Where manuscripts contain special symbols, characters and diagrams, the authors are advised to also submit their paper in PDF format. Each page must be numbered and footnotes should be numbered consecutively in the main body of the text and appear at footer of page. For all references authors must use the Humanities style, as it is presented in The Chicago Manual of Style, 15th edition. Large quotations should be set off clearly, by indenting the left margin of the manuscript or by using a smaller font size. Double quotation marks should be used for direct quotations and single quotation marks should be used for quotations within quotations and for words or phrases used in a special sense.

## **5. Official Languages**

The official languages of the journal are: English, French and German. Authors who submit papers not written in their native language are advised to have the article checked for style and grammar by a native speaker. Articles which are not linguistically acceptable may be rejected.

## **6. Abstract**

All submitted articles must have a short abstract not exceeding 200 words in English and 3 to 6 keywords. The abstract must not contain any undefined abbreviations or unspecified references. Authors are asked to compile their manuscripts in the following order: title; abstract; keywords; main text; appendices (as appropriate); references.

## **7. Author's CV**

A short CV including the author's affiliation and professional address must be sent in a separate file. All special acknowledgements on behalf of the authors must not appear in the submitted text and should be sent in the separate file. When the manuscript is accepted for publication in the journal, the special acknowledgement will be included in a footnote on the first page of the paper.

## **8. Review Process**

The reason for these requests is that all articles, with the exception of articles from the invited contributors, will be subject to a strict blind-review process. Therefore the authors should avoid in their manuscripts any mention to their previous work or use an impersonal or neutral form when referring to it. The review process is intended to take no more than six months. Authors not receiving any answer during the mentioned period are kindly asked to get in contact with the editors. Processing of papers in languages other than English may take longer. The authors will be notified by the editors via e-mail about the acceptance or rejection of their papers. The editors reserve their right to ask the authors to revise their papers and the right to require reformatting of accepted manuscripts if they do not meet the norms of the journal.

## **9. Acceptance of the Papers**

The editorial committee has the final decision on the acceptance of the papers. Papers accepted will be published, as far as possible, in the order in which they are

received and they will appear in the journal in the alphabetical order of their authors.

### **10. Responsibilities**

Authors bear full responsibility for the contents of their own contributions. The opinions expressed in the texts published do not necessarily express the views of the editors. It is the responsibility of the author to obtain written permission for quotations from unpublished material, or for all quotations that exceed the limits provided in the copyright regulations. The papers containing racist and sexist opinions assumed by their authors will be rejected. The presence in texts of sexist or racist terms is accepted only if they occur in quotations or as examples.

### **11. Checking Proofs**

Authors should retain a copy of their paper against which to check proofs. The final proofs will be sent to the corresponding author in PDF format. The author must send an answer within 3 days. Only minor corrections are accepted and should be sent in a separate file as an e-mail attachment.

### **12. Reviews**

Authors who wish to have their books reviewed in the journal should send them at the following address: Institutul de Cercetări Economice și Sociale „Gh. Zane” Academia Română, Filiala Iași, Str. Teodor Codrescu, Nr. 2, 700481, Iași, România. The authors of the books are asked to give a valid e-mail address where they will be notified concerning the publishing of a review of their book in our journal. The editors do not guarantee that all the books sent will be reviewed in the journal. The books sent for reviews will not be returned.

### **13. Property & Royalties**

Articles accepted for publication will become the property of *Logos & Episteme* and may not be reprinted or translated without the previous notification to the editors. No manuscripts will be returned to their authors. The journal does not pay royalties. Authors of accepted manuscripts will receive free of charge two copies of the issue containing their papers.

### **14. Permissions**

Authors have the right to use their papers in whole and in part for non-commercial purposes. They do not need to ask permission to re-publish their

## Logos & Episteme

papers but they are kindly asked to inform the Editorial Board of their intention and to provide acknowledgement of the original publication in *Logos & Episteme*, including the title of the article, the journal name, volume, issue number, page number and year of publication. All articles are free for anybody to read and download. They can also be distributed, copied and transmitted on the web, but only for non-commercial purposes, and provided that the journal copyright is acknowledged.