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# Constructive knowledge and the justified true belief paradigm

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## Abstract

In this paper we analyze the foundations of epistemology from a constructive Brouwerian position. In particular, we consider the famous tripartite account of knowledge as *justified true belief*, *JTB*, traditionally attributed to Plato as well as counter-examples by Russell and Gettier. We show that from an intuitionistic perspective, when the constructive character of truth is taken into account, both Russell and Gettier examples no longer refute the principle that *JTB yields knowledge*. Moreover, we argue that *JTB yields knowledge* could be accepted given some natural constructivity assumptions.

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## 1. Introduction

There is a vast literature on the tripartite account of knowledge as justified true belief, *JTB*. We will refer the reader to [4] for a history of the subject. Within this paradigm, justified true belief is sufficient for knowledge. The following Russell [8] and Gettier [5] examples, however, reveal problems with *JTB yields knowledge*: each of these cases presents an epistemic situation in which an agent possesses a justified true belief which does not qualify as knowledge.

### 1.1. Russell examples

Here is Russell's example from [8].

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1 If a man believes that the late Prime Minister's last name began with a 'B,' he believes  
 2 what is true, since the late Prime Minister was Sir Henry Campbell Bannerman.<sup>1</sup> But if  
 3 he believes that Mr. Balfour was the late Prime Minister, he will still believe that the late  
 4 Prime Minister's last name began with a 'B,' yet this belief, though true, would not be  
 5 thought to constitute knowledge.

6 Let  $P$  be the sentence

7 *the late Prime Minister's last name began with a 'B'.*

8 The scenario in which the agent concludes  $P$  by believing that Mr. Balfour is the late Prime  
 9 Minister,  $P$  is a case of justified true belief but not knowledge.

10 To avoid reducing the failure of knowledge to "false premises", consider another example by  
 11 Russell from [8].

12 If I know that all Greeks are men and that Socrates was a man, and I infer that Socrates  
 13 was a Greek, I cannot be said to-know-that Socrates was a Greek, because, although my  
 14 premises and my conclusion are true, the conclusion does not follow from the premises.

15 Russell's examples illustrate that the "false premise" in the Prime Minister story is an instance  
 16 of a more general phenomenon: an *erroneous justification* which, in principle, can fail for  
 17 many different reasons: unreliable premises, hidden assumptions, deduction errors, an erroneous  
 18 identification of the goal sentence, irrational decisions to accept a justification, etc. Moreover,  
 19 one can easily imagine a knowledge-producing reasoning from a source with false beliefs (both  
 20 an atheist and a religious scientist can produce reliable knowledge products though one of them  
 21 has false beliefs), so "false premises" are neither necessary nor sufficient for a justification to  
 22 fail.

23 Given these considerations, we prefer speaking about *erroneous justifications* in a general  
 24 setting.

## 25 1.2. Gettier examples

26 We present a shortened version of Gettier example II which is quite sufficient for our analysis.

27 Let us suppose that Smith has strong evidence for

28 (a) *Jones owns a Ford.*

29 Smith constructs the proposition:

30 (b) *Either Jones owns a Ford, or Brown is in Barcelona*

31 entailed by (a) though Smith has no idea where Brown is. But imagine now that Jones does  
 32 not own a Ford, and entirely unknown to Smith, Brown is in Barcelona. Then Smith does  
 33 not know that (b) is true, even though

- 34 1. (b) is true,
- 35 2. Smith does believe that (b) is true, and
- 36 3. Smith is justified in believing that (b) is true.

<sup>1</sup> In 1912 the British Prime Minister was Herbert Henry Asquith, who succeeded Henry Campbell Bannerman in 1908, who succeeded Arthur James Balfour in 1905.

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