OCCAM'S RAZOR AND BRAIN IN A VAT

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1 - INTRODUCTION: OCCAM'S RAZOR AND GENERALIZATIONS

What I'm going to write in this section is referred only to Hume's problem, not to Goodman's paradox, which is a more general problem that regards also induction but not only induction.
Let's compare a hypothesis A "All emeralds are green" with a hypothesis B "All emeralds are subdivided into green ones and blue ones", which states that there are not only green emeralds but also blue emeralds.
The hypotheses A and B are incompatible.
We don't know a priori reasons to prefer one hypothesis to the other one; so, we look for an a posteriori reason to prefer one hypothesis to the other one**. [endnote 1].**
In the scientific generalizations of the form "All Fs are G" the number of the Fs is assumed as an infinite number (if the number of Fs were a finite number, the Hume's problem would be easily treated with probability calculations, of objective probability), and therefore it is considered impossible to check all Fs.
So, if A is true, B can never be falsified (because it is impossible to check all Fs, it is considered impossible to check all the emeralds; and therefore we can never prove that there is not a blue emerald).
By contrast, if B is true, it is not impossible that A will result falsified (the observation of a blue emerald would falsify A).
In other words, the truthfulness of A implies the impossibility of falsification of both A and B; by contrast, the truthfulness of B does not imply the impossibility of falsification of A.
Thus, the fact that at present both A and B are not falsified is a necessary consequence of A, it is not a necessary consequence of B.
And so, it is more rational to bet on A rather than on B, we prefer to bet on A rather than on B.
In other words, the truthfulness of A implies the impossibility of falsification of both A and B; by contrast, the truthfulness of B does not imply the impossibility of falsification of A.
The proposition A necessarily implies the prediction that both A and B are not falsified; the proposition B does not necessarily imply the prediction that both A and B are not falsified.
The current evidence is that both A and B are not falsified: the hypothesis A necessarily predicts that both A and B are not falsified; the hypothesis B does not necessarily predict that both A and B are not falsified.
And so, it is more rational to bet on A rather than on B.

2 - OCCAM'S RAZOR AND BRAIN IN A VAT

Let's consider the skeptical example of the brain in a vat.
It has been pointed out by Crispin Wright **(**1994) that Putnam's argument does not affect certain cases such as my brain being removed from my skull by a mad scientist and hooked up to a computer.
Since Putnam's argument falls flat at least in cases where the brain is first removed from a human body and then hooked up to a computer, I consider the skeptical aspects of the brain-in-a-vat thought experiment below.
Let's consider the following hypotheses:
C "I'm a brain in a vat"
EC "I'm not a brain in a vat".
It is argued by skeptics that it cannot be proven that we are not brains in a vat; in this situation, the case is similar to that of the emeralds mentioned in section 1 of this paper: once we have made the assumption that the number of emeralds is infinite, it is impossible to prove that all emeralds are green.
If we assume the skeptical thesis according to which it is impossible to prove that we are not brains in a vat, i.e. there is the impossibility of falsifying C, then the truthfulness of EC implies that both C and EC can not be falsified.
On the other hand, the truthfulness of C does not imply the unfalsifiability of EC: for example, the mad scientist mentioned above could decide (perhaps for a sadistic pleasure) to inform us and prove to us that we are brains in a vat; in the latter case the hypothesis EC would be falsified.
The truthfulness of EC implies the unfalsifiability of both EC and C. By contrast, the truthfulness of C does not imply the unfalsifiability of EC.
The current evidence is that both C and EC are not falsified: the hypothesis EC necessarily implies that both EC and C result not falsified; the hypothesis C does not necessarily imply that both C and EC result not falsified
And so, it is more rational to bet on EC rather than on C.

ENDNOTES

1 - When we have to choose between two incompatible and unfalsified hypotheses there is not a-priori information that allows us to prefer a hypothesis to the other one. By contrast, when we have to do with two compatible hypotheses, it can be that we have a-priori information that gives us a reason to prefer to bet on a hypothesis rather than on the other.
For example, the hypothesis H2 "All emeralds are green and have a hardness range of 7.5 to 8 on the Mohs's scale" is an under-hypothesis of the hypothesis H1 "All emeralds are green": the truthfulness of the hypothesis H2 necessarily implies the

truthfulness of the hypothesis H1; by contrast, the truthfulness of the hypothesis H1 does not imply the truthfulness of the hypothesis H2.
Since we know a-priori that the set of the emeralds which are green and have a hardness range of 7.5 to 8 on the Mohs's scale is a subset of the set of the green emeralds, we know a-priori that it is more convenient to bet on the hypothesis H1 “All emeralds are green” rather than on the hypothesis H2 “All emeralds are green and have a hardness range of 7.5 to 8 on the Mohs's scale”.
But in our lives we often have to chose between two incompatible and unfalsified hypothesis and we don't have available a-priori information that allows us to prefer to bet on a hypothesis rather than on the other one; thus, we have to search a-posteriori information to have a rational reason to bet on a hypothesis rather than on the other hypothesis.

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