AN EPISTEMIC SOLUTION TO GOODMAN'S NEW RIDDLE OF INDUCTION

ABSTRACT. Goodman's new riddle of induction can be characterized by the following questions: What is the difference between 'grue' and 'green'?; Why is the hypothesis that all emeralds are grue not lawlike?; Why is this hypothesis not confirmed by its positive instances?; and, Why is the predicate 'grue' not projectible? I argue in favor of epistemological answers to Goodman's questions. The notions of 'lawlikeness', 'confirmation', and 'projectibility' have to be relativized to (actual and counterfactual) epistemic situations that are determined by the available background information. In order to defend this thesis, I discuss an example that is less strange than the grue example. From the general conclusions of this discussion, it follows that 'grue' is not projectible in the actual epistemic situation, but it is projectible in certain counterfactual epistemic situations.

INTRODUCTION: THE NEW RIDDLE OF INDUCTION

How do we know that the sun will rise tomorrow, that all samples of pure water consist of H2O, that fire causes heat? Is it reasonable to believe that the future will resemble the past, that there are regularities in nature? Can inductive inferences be justified? To find an answer to these questions is the classic problem of induction. Hume's answer to these questions was negative: inductive inferences cannot be justified, the classic problem of induction has no solution.1

In contemporary philosophy, the problem of induction has been reformulated by Goodman in his Fact, Fiction, and Forecast. It is known under the title "the new riddle of induction". Whereas the old riddle of induction concerns problems of justification, the new riddle is usually taken to concern problems of description and explanation.2 A solution to the new riddle of induction consists of a description and explanation of our inductive practice. Specifically, it consists of answers to the following questions: How do we draw inductive inferences?; What is the difference between valid and invalid inductive inferences?; and, finally, Why do we draw one rather than another inductive inference? I will only discuss these problems, leaving questions of justification aside.

Goodman's new riddle of induction deals with emeralds and focuses on the predicate *grue* which is roughly defined as follows. Something is grue, if it is examined before $t_0$ and is green, or is not examined before $t_0$ and is blue.

$t_0$ is a given time – let's say the present moment. Let's suppose we have examined a number of emeralds, and they all have been green. According to the definition of 'grue', they all have been grue. We are considering two hypotheses. The first hypothesis says that all emeralds are green, the second hypothesis says that all emeralds are grue. The data are positive instances of both hypotheses. There seem to be no differences between 'green' and 'grue' – as far as our observations are concerned. But when it comes to induction, 'green' and 'grue' differ considerably. The two hypotheses contradict each other. According to the first hypothesis, unexamined emeralds and emeralds examined in the future are green; but, according to the second hypothesis, they are blue. We believe in the truth of the first, but not of the second hypothesis. The first hypothesis is lawlike; the second is not. The first hypothesis, but not the second, sustains certain correlated counterfactuals like the following: if this examined emerald (which is green) had not been examined, it would (still) be green. It would *not* be grue – i.e., blue. The data confirm the hypothesis that all emeralds are green, but they do not confirm the hypothesis that all emeralds are grue. The predicate 'green' can be projected; the predicate 'grue' cannot be projected, that is, it cannot be used in inductive generalizations.

The new riddle of induction can be characterized by the following questions: What is the difference between 'grue' and 'green'?; Why is the hypothesis that all emeralds are grue not lawlike?; Why is this hypothesis not confirmed by its positive instances?; and, Why is the predicate 'grue' not projectible?

The new riddle of induction has been extensively discussed, and many solutions of the puzzle have been proposed. But the discussion is sometimes confusing for the following reasons. There are several definitions of 'grue' which differ considerably, and some of them are obscure.

The epistemic setting of the discussion is not always clear. This is especially significant because most of the standard examples are – strictly speaking – inadequate. The so-called 'law' *all sapphires are blue*