BEYOND GOODMAN: THE RETURN OF HUME'S OLD RIDDLE OF INDUCTION

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ABSTRACT: This paper argues that each of the three core steps in Goodman's formulation of the 'new riddle of induction' is fallacious. First, it challenges the parallel between the justification of deduction and that of induction, highlighting how the latter's ampliative nature renders Goodman's purported dissolution of Hume's problem untenable. Second, it rejects the a priori distinction between lawlike and accidental generalizations, maintaining that any observed regularity provides a prima facie legitimate basis for an inductive inference, thus reconceptualizing Goodman's critique of Humean habit. Finally, it addresses the "grue" paradox, arguing that its origin lies not in an inescapable dependence on language, but in the illegitimate employment of beliefs that embed presuppositions about an as-yet-undetermined future within the very description of the evidence. As a solution, a normative criterion of exclusion is proposed: the validity of an inductive practice requires that the description of observational data first be purified of any future-dependent belief. This epistemological solution, which operates at a level logically prior to the inference, is then compared to the main alternatives in the literature (including those of Quine, Putnam, Kripke, and Davidson), and its capacity to resolve the riddle without recourse to problematic metaphysical or pragmatic commitments is demonstrated.

KEYWORDS: new riddle of induction, problem of induction, justification of induction, lawlike generalizations, accidental generalizations, induction and language

1. Introduction

To understand Nelson Goodman's new riddle of induction (Goodman 1955), one must first analyze Hume's problem of induction (Hume 2007), which serves as its premise. Hume argues that our inferences about the unobserved can be founded neither on "demonstrative" (deductive) nor on "probable" (inductive) reason. His argument takes the form of a devastating dilemma.

First, an inductive inference cannot be justified deductively. A valid deduction is one in which it is impossible for the premises to be true and the conclusion false. In any inductive inference, however, the conclusion goes beyond the premises. The statement that all swans observed so far are white does not logically entail that the next swan will be white; it is perfectly conceivable, without any contradiction, that the next swan will be black. As Hume states, "We can at least conceive a change in the course of nature; which sufficiently proves, that such a

change is not absolutely impossible" (Hume 2007, 62). Therefore, there is no logical guarantee that past regularities will hold in the future.

Second, an inductive inference cannot be justified inductively. Attempting to do so would lead to a blatant circularity. Such an argument would take the following form: "Induction has worked in the past; therefore, induction will work in the future." But this very argument is an inductive inference, which presupposes the validity of the principle it aims to prove. It assumes what is in question, thereby committing a petitio principii.

Having excluded reason as the foundation of induction, Hume proposes a "sceptical solution" that shifts the analysis from the level of logical justification to that of psychological description. If we are not guided by reason, it must be by some other principle of human nature. This principle is custom or habit. After repeatedly observing the "constant conjunction" of two types of events, A and B, the human mind develops a propensity to move from the impression of A to the idea of B. It is this mental transition, produced by habit, that constitutes an inductive inference. It is not an act of reasoning, but an associative mechanism of our imagination, a form of natural instinct that allows us to navigate the world.

With this premise in mind, we can examine the first step of Goodman's analysis. Goodman accepted Hume's conclusion that our confidence in the truth of inductive inferences could not be justified. However, he did so only to clarify that such an external justification for induction was not necessary at all. According to Goodman, the approach used for deduction could be replicated for induction. For the latter, no external justification had been required; instead, the task was limited to identifying criteria of validity for its inferences. These criteria were derived from rules capable of generalizing the deductive inferences we recognize as self-evident within our practice. The same, Goodman argued, should be done for induction: to identify criteria of validity in the rules that generalize those specific inductive inferences whose validity appears self-evident within the inductive practice itself.

Goodman's second step was to show that Hume's solution, habit, was an imprecise and insufficient description of our inductive practice. To do so, Goodman introduced a fundamental criterion that our practice seems to follow consistently: the ability to distinguish observations that are sensible to project into the future via inductive inferences, because such generalizations appear lawlike, from those that are not, because they appear accidental. For example, the generalization:

> All pieces of copper conduct electricity

is one we recognize as lawlike, meaning that observing another piece of copper conducting electricity increases our confidence in its universal validity (Goodman 1955, 73). In contrast, the generalization:

All men in this room are third-born sons

appears accidental, as observing another third-born son in the room does not increase our confidence in its universal validity (Goodman 1955, 73).

According to Goodman, it was therefore necessary to understand what leads us to consider some inductive inferences valid and others invalid. The answer could certainly not be habit, as it has no power to distinguish between lawlike and accidental inferences. For habit, all repetitions are equal: there is no distinction between the association "copper–conducts electricity" and "in this room–is a third-born son," whereas such a distinction, as we have seen, is operative at the level of our inductive practice.

The third step in Goodman's analysis was also the most radical. After establishing the need to distinguish lawlike from accidental generalizations, he showed that this task was undermined at its foundation by a deeper problem: the dependence of our inductive practice on the language we use. The issue is not merely to distinguish between two types of generalizations, but to choose among the limitless, and often incompatible, inductive inferences that can be formulated from the same past evidence, simply by adopting different definitions in our language. The following example perfectly illustrates the problem. Suppose we have only ever observed green emeralds. This evidence supports the following two incompatible inductive inferences, based on two different universal generalizations:

All emeralds are "green"

All emeralds are "grue"

where "green" applies to any object that is green whenever it is observed (for the first time), and "grue" applies to any object that is green if observed (for the first time) before a future time t and blue if observed (for the first time) at or after t (Goodman 1955, 74). It is clear that, given these definitions, both generalizations are not only consistent with all past observations but also generate incompatible future predictions (for any observation at or after t).

The issue raised is not just one of selecting which futures to project from the same past, but is also a foundational problem for induction itself. An inductive practice cannot endorse two factually incompatible predictions, since they cannot both be valid; therefore, a criterion of validity must allow one to be privileged over the other. The problem is that such a criterion cannot be found in the use of incorrect syntax, because both inductive inferences share the same syntactic form:

All observed Xs have property G, therefore all Xs have property G

Nor can it be found in the use of flawed definitions, as both the definitions of "green" and "grue" are perfectly capable of providing a correct interpretation of the world. Nor is it possible to distinguish between these terms on the grounds that the definition of "grue" appears to be based on the following time-dependent disjunction:

> "Grue" means green before time t or blue at or after time t

because, from the perspective of a speaker who uses "grue" and "bleen," it is the predicate "green" that is defined by a time-dependent disjunction:

> "Green" means grue before time t or bleen at or after time t

where "bleen" applies to an object that is blue if observed (for the first time) before t and green if observed (for the first time) at or after t.

Goodman's analysis thus leads to a paradoxical conclusion. On the one hand, he dissolves the problem of justification as Hume posed it, declaring it a pseudo-problem and thereby freeing induction from the search for impossible metaphysical guarantees. On the other hand, he does so only to expose it to an even more radical challenge. The new riddle no longer questions our license to project an observed regularity into the future, but rather our very ability to justify the choice of description with which we articulate that regularity. Compounding the problem, the solution could be sought neither in logical syntax nor in the incorrect use of definitions. Inductive validity, in other words, ceased to be a matter of formal logic and became a matter of historical pragmatism, tied to the contingency and entrenchment of our conceptual schemes.

This paper will argue that the state of induction is, in fact, very different from the one described by Goodman. It will be argued that, upon careful analysis, it is not Hume's problem that dissolves, but rather the very issues raised by Goodman himself. This goal will be achieved by deconstructing each of the three aforementioned steps and showing why they are fallacious.

This paper, however, does not merely aim to dissolve Goodman's new riddle. It also intends to survey the main approaches that philosophy has developed to address this problem. This will make it possible to situate the solution proposed here within the contemporary debate and to demonstrate its capacity to resolve the new riddle of induction without recourse to problematic metaphysical or pragmatic commitments.

2. A Survey of Solutions to the Problem of Induction

Goodman's new riddle has generated a vast and complex philosophical debate, giving rise to several lines of solution that reflect profound epistemological and

metaphysical divergences. The following analysis examines the six most influential proposals, outlining their strategy, proponents, and main criticisms.

The first solution to Goodman's new riddle we will consider is the pragmatic one proposed by Goodman himself (Goodman 1955, 94-95). From this perspective, Goodman argues that our preference for the predicate "green" over "grue" stems not from any intrinsic logical or metaphysical property, but from the fact that "green" is a far more entrenched predicate in our linguistic practice. The entrenchment of a predicate is a measure of its past success; it is a function of the frequency with which it has been used in inductive projections that have proven correct. When two conflicting hypotheses are equally supported by the evidence, as in the case of "all emeralds are green" and "all emeralds are grue," Goodman's theory prescribes choosing the hypothesis that employs the better-entrenched predicate. "Green" has a long and honored history of successful projections, whereas "grue" has none. Projectibility, therefore, is not a timeless feature of predicates but a property they acquire through the history of their use in our linguistic community. Goodman's solution, though ingenious, has attracted significant criticism. The most persistent objection is that the theory of entrenchment is merely descriptive, not explanatory. It tells us that we project "green," but it does not explain why "green" became the entrenched predicate. The choice seems to be reduced to a "linguistic accident," an apparently fragile basis for scientific rationality. Dancy (1985, 207) criticizes the theory of entrenchment, arguing that the mere appeal to past practice offers no rational justification for preferring "green" over "grue"; in this view, entrenchment appears not as the ground of projectibility, but as its consequence. A second criticism concerns the "problem of the first projection": how can the theory account for the projection of entirely new scientific predicates, which by definition have no history of use and thus possess no entrenchment? Finally, philosophers like Howard Kahane (1965, 377) have questioned the theory's formal adequacy, presenting counterexamples where Goodman's rules would seem to lead to counterintuitive conclusions or remain silent. Robert Ackermann (1967, 188-90) further developed this line of criticism, highlighting the difficulties in applying Goodman's rules in complex scenarios.

The second solution is Quine's "natural kinds" approach. In stark contrast to Goodman's pragmatic approach, Willard Van Orman Quine, in his essay "Natural Kinds" (Quine 1969), proposes a realist and metaphysical solution. According to Quine, a predicate is projectible if and only if it denotes a "natural kind", that is, a grouping that reflects the objective structure of the world, its real "joints," rather than our contingent interests. The reason we project "green" is that green emeralds constitute a natural kind, whereas "grue" things are an artificial and heterogeneous

aggregate. Projectibility is thus grounded in metaphysics. The epistemic mechanism that grants us access to these natural kinds is, for Quine, an innate sense of similarity. We judge two green emeralds to be more similar to each other than two "grue" things (one green, one blue) would be. Our inductions are guided by this sense of similarity, which orients us toward "natural" groupings. The sharpest critic of this position is Quine himself. He immediately recognizes the deep circularity that vitiates his proposal: the concepts of "kind" and "similarity" are interdefinable in a way that offers no real elucidation. Things are similar because they belong to the same kind, and they belong to the same kind because they are similar. Attempting to define one in terms of the other proves to be a futile endeavor. Furthermore, Quine (1969, 116) notes the "dubious scientific standing" of our sense of similarity. Why should our subjective, innate psychological dispositions be a reliable guide to the objective structure of a world "we never made"? Quine (1969, 126) sketches a possible Darwinian explanation, species with a sense of similarity "attuned" to the world's regularities are more likely to survive, but he concedes that this is, in turn, an inductive justification of induction. Finally, the attempt to ground kinds in shared properties merely shifts the problem: what distinguishes a genuine, kind-defining property from an arbitrary class of individuals? Quine's solution, while appealing for its realist inclinations, runs aground on the impossibility of non-circularly grounding the metaphysical concepts on which it rests.

The third solution is Hilary Putnam's reference and pluralism. In works such as Reason, Truth, and History (Putnam 1981) and Renewing Philosophy (Putnam 1992), Putnam reframes Goodman's problem as a symptom of a deeper issue related to reference and the relationship between language and the world. Using model-theoretic arguments, Putnam shows that any internally consistent theory can be made true of the world, provided one adopts a non-standard reinterpretation of its terms (the permutation argument). The "grue" hypothesis is an intuitive example of such a semantic reinterpretation. For Putnam, the solution lies not in finding the single set of "correct" predicates but in recognizing that our choice is constrained by our pragmatic aims, values, and conceptual schemes, within a framework of "internal realism" (Putnam 1981, 49–50). There is no "God's Eye View" from which to decree that "green" is right and "grue" is wrong. Rather, "green" is the entrenched predicate within our form of life and our successful practices. The legitimacy of "green" stems from its centrality in our Lebenswelt (life-world), not from any privileged correspondence to a noumenal reality. Putnam's position has elicited strong critical reactions, especially from realist-oriented philosophers. David Lewis (1984, 221), in his article "Putnam's Paradox", argues that Putnam's conclusion is simply "incredible," as it asks us to abandon the deeply held belief that our theories,

ideally, describe the world as it is, independently of us. Lewis (1984, 227-28) counters that the permutation argument works only if one ignores "reference magnets," by virtue of which some properties (like greenness) are intrinsically more "eligible" to be the referents of our terms than others (like grueness). This move, however, risks collapsing back into a form of metaphysical realism similar to Quine's, by positing an objective structure of "naturalness" in the world that guides reference. Other critics have argued that Putnam's approach trivializes the concept of truth, reducing it to a matter of semantic stipulation, which conflicts with the idea that science makes genuine discoveries about a mind-independent world.

The fourth solution is Kripke's skeptical solution concerning meaning. Saul Kripke (1982, 8-9), in his influential interpretation of Wittgenstein, presents a paradox that is structurally analogous to Goodman's. Kripke imagines a skeptic who questions my past use of the "+" symbol. How can I be sure that in the past, by "+," I meant the addition function and not the "quaddition" function, defined as identical to addition for addends up to a certain value, but diverging in all other cases? Just as all past evidence is compatible with both "green" and "grue," all my past calculations are compatible with both addition and quaddition. According to the Kripkean skeptic, there is no "fact" in my mind, my dispositions, or my past that determines which rule I was following. The "skeptical solution" Kripke proposes is to reject the demand for such a foundational fact. Meaning and rule-following are not grounded in private mental states but in public, communal practices. We are justified in asserting that a speaker means "green" (or "addition") if their use of the term conforms to the standards of our linguistic community. This move closely echoes Goodman's solution, replacing historical entrenchment with communal conformity. This proposal, too, has generated intense debate. Many Wittgenstein scholars argue that Kripke's interpretation is heterodox and that Wittgenstein's true position is not skeptical but rather "therapeutic," aimed at dissolving the philosophical confusion that gives rise to the paradox. A more general criticism is that the Kripkean solution seems to reduce truth and meaning to a form of communitarian relativism or conventionalism, thereby undermining objectivity. What if the community's practices are systematically mistaken? Finally, it is unclear whether the solution fully resolves Goodman's riddle. It explains why we feel justified in projecting "green" (it is our community's practice), but, like Goodman's solution, it struggles to explain why this practice is successful or why it is the correct practice for capturing the world's regularities. It shares the weakness of being more descriptive than explanatory.

The fifth solution is the Bayesian approach proposed by Elliott Sober. Sober (1994) reformulates Goodman's riddle in the terms of Bayesian probability theory.

The Bayesian approach evaluates hypotheses based on their posterior probability, calculated using Bayes' theorem:

$$P(H|E) = \frac{[P(E|H) \times P(H)]}{P(E)}$$

When comparing two hypotheses, Hgreen ("all emeralds are green") and Hgrue ("all emeralds are grue"), in light of the evidence E (all observed emeralds are green), the probability of the evidence given the hypothesis (the "likelihood," P(E|H)) is identical for both, and equal to 1, since both hypotheses deductively entail the observed evidence. Consequently, the difference in their posterior probability must lie entirely in their prior probabilities (P(H)), that is, the plausibility we assign to each hypothesis before considering the evidence. The Bayesian solution, therefore, is to assert that our preference for the "green" hypothesis is justified because we assign it a much higher prior probability:

$$P(Hgreen) \gg P(Hgrue)$$

The main criticism of this solution is that it does not solve the riddle but merely displaces it to another level: the so-called "problem of the priors." Why are we justified in assigning such a low prior probability to the "grue" hypothesis? If this assignment is based simply on our intuition or linguistic practice, the solution becomes circular, merely translating Goodman's entrenchment into probabilistic language without providing an independent justification. If priors are purely subjective, as some Bayesians argue, then there is no objective basis for preferring "green," and scientific rationality seems compromised. On the other hand, attempts to ground priors on an objective basis face enormous difficulties. In response, some Bayesians, while acknowledging the difficulty, have sought to ground the assignment of priors on less subjective bases. Sober, for example, though skeptical about the possibility of assigning objective prior probabilities, suggests that our greater confidence in the "green" hypothesis is not a mere whim. It derives from "substantive, if hard to articulate, theories about the world" (Sober 1994, 231). Our background knowledge leads us to believe that emeralds share a homogeneous physical structure and that their color depends on that structure. This background belief, which links color to a stable microstructure, makes the hypothesis of a coordinated and arbitrary color shift over time (as implied by "grue") extremely less plausible than the hypothesis of chromatic stability. In this view, the low prior assigned to "grue" is not an unjustified a priori assumption but a reflection of our broader physical and metaphysical theories about the nature of objects.

The sixth and final solution is the appeal to nomological constraints proposed by Donald Davidson. Davidson (1980, 218–223) develops a theory of "anomalous

monism," according to which an essential feature of a genuine law of nature is that its predicates are "made for each other." This means they belong to a closed and coherent theoretical system, like that of physics. The predicates "green" and "emerald" belong to a family of concepts (color, mineralogy, chemistry) that have co-evolved to support robust, counterfactual-supporting generalizations. In contrast, "grue" is a gerrymandered predicate, one that artificially connects disparate conceptual domains (chromatic properties and temporal coordinates). For Davidson, there can be no strict psychophysical laws because mental and physical predicates are not "made for each other"; for analogous reasons, there can be no "grue-physical" laws. The assertion "All emeralds are grue" is not genuinely lawlike because its predicates are not part of a unified, projectible vocabulary. Projectibility is thus a function of a predicate's coherence and integration within a mature nomological network. This solution, though suggestive, is not without its critics. The criterion that predicates must be "made for each other" appears metaphorical and potentially a priori. How can we determine which predicates belong to the same "family" without begging the question in favor of our current scientific vocabulary? The risk is a relativization to language not dissimilar to Goodman's. Furthermore, scientific progress often involves creating new and seemingly "hybrid" concepts that link previously distinct domains. One example cited in the literature is neutrino oscillation, a property that could be described in "grue-like" terms (a neutrino's mass depends on its observational context) but which has proven to be a genuine and projectible physical regularity. This suggests that conceptual oddity is not an infallible indicator of non-projectibility.

3. On the Fallacy of Goodman's First Step

As has been shown, Goodman's first step consisted in accepting the impossibility of justifying the truth of inductive inferences, arguing that it is unnecessary to seek impossible metaphysical justifications, since we can apply to induction the model already adopted for deduction.

However, this thesis of Goodman's must be rejected, as deduction possesses a precise justification that incontrovertibly grounds its validity, thereby justifying, simultaneously, all its rules. The principle at issue is that deduction is essentially non-ampliative and truth-preserving: it never produces new information but merely makes explicit, in the conclusion, the information and conceptual relations already contained in the premises. The deductive rules, in this sense, represent the formal tools through which these relations are made explicit. It follows that, if the truth of the premises is assumed, this truth will necessarily be preserved in the conclusion.

The same principle does not hold for induction, because inductive inferences are intrinsically ampliative: they add new, potentially unlimited, information beyond the initial data. Given the truth of the premises, the inescapable need therefore arises to justify our confidence in the truth of this new information. Such a justification need not necessarily take the form required by Hume. One can grant, consistently with Goodman himself, that there are no metaphysical guarantees capable of giving us confidence in the truth of new information. However, even in the absence of such guarantees, a reason is required to believe that the information so obtained is more reliable than an equally unlimited set of randomly selected information.

Ignoring this challenge, which constitutes a real and foundational problem, on the grounds that other, supposedly more serious problems exist, in no way diminishes its force. Therefore, even if the subsequent steps of Goodman's argument were correct, one could not accept his claim to have dissolved Hume's problem of induction, which instead remains intact and pressing.

4. On the Fallacy of Goodman's Second Step

As has been shown, Goodman's second step consists in arguing that the Humean solution based on habit is inadequate to describe our inductive practice, as it cannot discriminate between generalizations that appear lawlike and those that appear merely accidental.

However, this thesis of Goodman's must also be rejected, as the a priori distinction between lawlike and accidental generalizations lacks any genuine justification. It is argued here, in other words, that every observed regularity provides a prima facie legitimate basis for an inductive inference. The mere fact that the proposition:

All observed Xs have property G

is true, makes it entirely legitimate to hypothesize that some law is determining that:

All Xs have property G

This position rests on the observation that if a property is consistently manifested in a given situation, it is reasonable to hypothesize that this regularity is not the result of chance. It is therefore legitimate to suspect the existence of some underlying regularity that can explain the persistence of the observed phenomenon. Moreover, the critique that this approach risks trivializing induction by opening the door to an infinite number of patently absurd projections is itself based on a misunderstanding of the very nature and function of induction. If induction is the tool that allows us to overcome a state of epistemic ignorance, then any a priori

limitation of its scope, based on prejudices about the plausibility of certain regularities, betrays its purpose. Whenever a property manifests itself with constancy, it is precisely in that context that we are required to investigate, moving beyond our preconceptions about how things are.

To better illustrate this concept, let us take the example proposed by Goodman himself. Suppose the following proposition holds:

All observed pieces of copper conduct electricity.

In such a case, we are faced with a property that manifests itself in every one of our observations. Since it is unlikely that this occurs by chance, it is reasonable to formulate the hypothesis that this observational constancy is determined by a regularity such as the following:

All pieces of copper conduct electricity.

For the sake of consistency, the same principle must apply in the case where the following proposition is also true:

All men observed in this room are third-born sons.

Here too, we are faced with a property that is repeated in every one of our observations. Since this also might not be happening by chance, it is entirely legitimate to consider as valid the hypothesis that these continuous observations are determined by a regularity such as the following:

All men in this room are third-born sons.

It is entirely reasonable to think, in other words, that we are also dealing with a regularity in this case. The supposed absurdity of such a regularity is, at this stage, irrelevant. We do not know, in fact, whether the observed regularity is due to chance or to an underlying cause; to allow our preconceptions to hinder the investigation would be an act contrary to the epistemic drive that induction embodies. This holds all the more true in this example, where the hypothesized regularity is not even as patently absurd as Goodman seems to suggest. Simply, a party reserved only for third-borns could be underway in that room. Given such a possibility, and with each new person we were to question who identified as yet another third-born son, it would be entirely legitimate for our confidence that this is indeed the case to increase. Goodman's position, by contrast, appears problematic; he holds that in such a situation, we would discard the aforementioned inference a priori as invalid. After all, if an event exclusively for third-borns were truly taking place in that room, it would be unreasonable to conclude that we would never be able to hypothesize it, due to an inductive practice that would require us to classify it as "accidental."

Naturally, no one would consider it legitimate, in the case at hand, to think that such a regularity is determined not by a party for third-borns, but by a law of nature comparable to those that govern subatomic particles. But lawlike generalizations need not be employed exclusively for identifying such fundamental regularities. They are tools for identifying patterns and can find application in countless other contexts. Their purpose is simply to explain why certain properties continue to repeat in a given situation, suggesting that some form of order, and not chance, is at work. This occurs, for example, when we are faced with the following observation:

All observed swans are white

This leads us to think that, if such a fact has always occurred, it might not be merely by chance; rather, there could be an underlying regularity such as the following:

All swans are white.

Here too, we have a generalization that does not claim to derive from a law of nature comparable to those that govern subatomic particles. Yet, no one has ever thought to reject it for this reason, or to classify it as an "accidental" inference to be discarded a priori. On the contrary, this is such an emblematic example of induction that it has become a textbook case in philosophy.

In conclusion, the division proposed by Goodman between lawlike and accidental generalizations appears entirely artificial and lacks any genuine correspondence with the inductive practice he himself intended to clarify. What is weakened by this analysis is precisely his critique of habit as an explanation for inductive practice. In light of the foregoing discussion, this critique appears unfounded, as our practice does not seem to require the a priori distinction that Goodman ascribes to it. Therefore, even if the subsequent step of Goodman's argument were correct, one could not grant that he has thereby neutralized the Humean appeal to habit.

5. On the Fallacy of Goodman's Third Step

As has been shown, Goodman's third step consists in arguing that the most serious problem facing induction is the dependence of our inductive practice on the language we use. However, this thesis must also be rejected, as our inductive practice is not, strictly speaking, dependent on language. Language is the tool through which we describe the world; the possibility of providing different descriptions of the same observation is not an intrinsic property of language, but of how we use it. Formulating different descriptions of the same observation is, in other words,

something we do through language, not something our language determines. What determines it is, rather, the particular interpretation we adopt to filter the observational evidence. To put it more explicitly, the descriptions of our observations can always be traced back to the beliefs we employ to interpret the raw data. By "raw data," however, one need not posit an elusive pre-conceptual experience; it is sufficient to refer to the level of description of the evidence that is intersubjectively accessible and common to the interlocutors (e.g., "the object, observed under these conditions, manifests this chromatic appearance").

With this point clarified, if our goal is to preserve the validity of inductive inferences, the question shifts to determining whether there are beliefs that are illicit to employ when interpreting observational evidence in the context of inductive practice. In this regard, it can be asserted that beliefs incorporating presuppositions about a non-deductively determined future are certainly illicit. This is because, as a matter of principle, the foundation of induction cannot itself make use of induction, on pain of falling into the classic fallacy of circular reasoning. It is obvious, in fact, that if we employ beliefs that refer to an undetermined future, we can do so only by virtue of our confidence that this future will be like the past; but it is precisely this confidence, as Goodman himself concedes to Hume, that we do not possess on rational grounds.

It should be noted that Goodman attempts to circumvent this constraint by considering it legitimate to ground induction on a core of inferences that we deem valid by virtue of a standard internal to our own practice. In other words, according to Goodman, there are certain "revelatory" inferences that serve as a standard of correctness for us, and whose projections from the past to the future are, consequently, considered licit. In his view, belief in the future ceases to be an insurmountable limit. What Goodman fails to realize, however, is that his own example of emeralds, far from being problematic for induction, is in fact problematic for his own project. For if there is one thing this example teaches us, it is that we cannot consider beliefs about a non-deductively determined future to be licit even within his privileged framework, because in that case they could be used to produce mutually incompatible inductive inferences. Let us consider, once again, the two generalizations introduced by Goodman:

> All emeralds are "green".
>
> All emeralds are "grue".

What generates these two different inductive inferences are two different interpretations of the same raw data (the observation of green-colored emeralds). The first interpretation, which allows us to classify this observation as one of "green"

emeralds, does not require the satisfaction of any condition located in the future relative to what is actually being observed, as shown by the fact that at any other future time, the same observation (of green-colored emeralds) would yield the same classification ("green"). The second interpretation, which allows us to classify the observation as one of "grue" emeralds, instead requires the satisfaction of a future-located condition, as shown by the fact that there is a future time, in this case t, after which the same observation (of green-colored emeralds) would have determined a different classification, in this case "bleen." The classification of an observation as "grue" is therefore conditional on its occurring before the future time t. But this means that what determines this classification is not only the observation in question but an implicit belief that the condition which would invalidate it is confined to the future. And it is precisely this belief, whose operation depends on the future, that makes the second inductive inference possible, allowing it to contradict the first. The exclusion of such beliefs from the process of describing the evidence is sufficient to prevent the generation of such contradictions.

It is important to stress that, in this context, it does not matter if, from the perspective of the second interpretation, it is the first and not the second of the two inductive inferences that exhibits a change after time t, shifting from the classification "grue" to "bleen." Even a proponent of this second interpretation must admit that the classification "green" requires no belief about the future to be formulated. The change in classification from "grue" to "bleen" is a consequence of the projection itself, not of a premise about the future embedded in the description of the evidence. This is the crucial distinction. In the case of the "green" classification, the transition from the observational statement:

> Emeralds observed so far are "green"

to the inductive generalization:

> All emeralds are "green"

does not require postulating any belief about the future. This transition, in fact, constitutes the inductive act itself: it is the very operation of projecting the past into the future. Evidence described as "green" can be legitimately projected precisely because it has been "purified" of any presupposition about the a future. Conversely, the "grue" classification is not a pure description of the evidence but, as has been shown, a construct that already embeds a belief about the future, thereby contaminating the starting point of the inference.

A thought experiment can illustrate the entire argument. Suppose there is a community whose religion includes two deities. The first is a God of Good, who causes every newly discovered object to be green until 3000 AD and blue thereafter.

In their religion, the property of being green before 3000 and blue after is called "grue." The second is a God of Evil, who causes every newly discovered object to be blue until 3000 AD and green thereafter. In their religion, the property of being blue before 3000 and green after is called "bleen." The faith in these two deities is such that when the believers discover a new object, if it is green, they do not classify it as "green," but as "grue," because for them it is the manifestation of an object described by their religion: an object that, had it been discovered after 3000 AD, would have been blue due to the power of the God of Good. Conversely, if the new object is blue, they classify it as "bleen," because for them it is the manifestation of an object described by their religion: an object that, had it been discovered after 3000 AD, would have been green due to the power of the God of Evil.

In this scenario, a believer, faced with consistently green emeralds, will not classify them as such but as "grue," thinking that each new green emerald is the result of the action of the God of Good, whose power is overcoming that of the God of Evil. The inductive inference the believer thus develops is that all emeralds will be "grue" (thanks to the action of the God of Good). When confronted with an atheist who classifies the observed (green) emeralds as "green" and, as an inductive inference, hypothesizes that all emeralds are "green," this believer will think they are dealing with an apparently disjunctive generalization: emeralds are "grue" until 3000 AD and then "bleen." However, they cannot deny that the atheist needed no belief about the future to formulate their classification as "green." They will realize, in essence, that such a change in classification from "grue" to "bleen" is an unavoidable consequence that the atheist encountered solely by projecting the observational evidence, not because of a premise about the future embedded in the description of that evidence.

Conversely, the believer cannot deny that they themselves employed a belief about the future, because if they had made the same observations of new green emeralds after 3000 AD, they would have classified them as "bleen." They are forced to admit, in other words, that for their classification as "grue," it was necessary for the observation to occur before 3000 AD. But this means that what determined this classification was not only the observation, but the belief that the invalidating condition (i.e., the cessation of the divine action that causes green emeralds to be discovered) will only occur in the future (after 3000 AD). And it is precisely this belief, whose operation depends on the future, that makes possible an inductive inference that contradicts the atheist's. It is sufficient to exclude the use of such beliefs to make such contradictions impossible.

Finally, it should be emphasized that the argument provided here can also address the most radical objection that can be raised to defend the "grue" paradox:

that of claiming that the observer who makes the "grue" classification denies the existence of a change even at the level of raw perceptual data between before and after time t. For this person, the perceptual experience is not of "green" before t and "blue" after t, but is constantly of "grue." In essence, they deny that there is any change at the level of raw data that would require a justification based on future beliefs. To demonstrate that this is a fallacy of equivocation, the following thought experiment suffices. Suppose that at a given moment x, all blue objects disappear. Individuals born after x would be unable to understand what a "grue" object is, because that concept requires the perceptual experience of blue. Consequently, whenever new green emeralds were discovered, where people born before x would see "grue" emeralds, those born after x could not. Yet it is an objective fact (regardless of how one describes it) that both groups would be experiencing the same identical raw data, thus demonstrating that the information made available by that raw data does not contain the experience of blue observed after time t.

In conclusion, Goodman's third step must also be rejected. Paradoxically, as we have already anticipated, the very example he provided, intended to challenge induction, ends up undermining his own project of grounding inductive practice on privileged inferences. The truth is that, once one accepts the Humean premise that there is no way to ground our confidence in the similarity between past and future, there is likewise no possibility of circumventing this limitation through a similarity between future and past guaranteed by a system of self-evident inferences. Perhaps the true legacy of Goodman's work is precisely this: to have reinforced, rather than dissolved, the depth of Hume's skepticism.

6. Comparison with Other Solutions

The solution presented here occupies a unique position within the landscape of alternatives discussed in this paper. Unlike other main strategies, it does not seek to resolve the paradox after the two hypotheses ("green" and "grue") have been formulated. Instead, it intervenes at a logically prior level, invalidating the very formation of the "grue" hypothesis as a legitimate basis for an inductive inference. Let us analyze the main comparisons in more detail.

The first comparison is with Goodman's "entrenchment" solution. Whereas Goodman's solution is a posteriori, pragmatic, and historical, based on the successful "biography" of predicates, the solution presented here is a priori, logical-epistemic, and procedural. Goodman breaks the symmetry by appealing to a contingent fact about our linguistic history; the solution presented here breaks it by appealing to a rule of rationality that governs the description of observational evidence. Consequently, the solution presented here has the advantage of being not merely

descriptive, but normative: it does not just tell us that we prefer "green," but provides a reason why we should, thus avoiding the critique of a lack of normativity leveled by authors such as Friedman.

The second comparison is with Quine's "natural kinds" solution. Quine's proposal is metaphysical: "green" is projectible because it corresponds to a real structure of the world. The solution presented here, by contrast, is purely epistemological: it requires no ontological commitment about the nature of colors or emeralds, but focuses exclusively on the legitimacy of the beliefs we use to interpret observations. In this way, it completely avoids the circularity critique that plagues Quine's notion of "similarity."

The third comparison is with Putnam's semantic solution. While Putnam's proposal treats "grue" as a symptom of the indeterminacy of reference, resolvable only by appealing to the pragmatic aims of our "internal realism," the solution presented here offers a rational constraint that limits this indeterminacy at its root. The choice of "green" is not a mere pragmatic preference within our conceptual scheme, but an epistemic necessity imposed by a rule that forbids grounding descriptions on unjustified inductive beliefs. The solution presented here is therefore stronger, as it does not merely describe our practice, but grounds it in a normative principle.

The fourth comparison is with Kripke's skepticism about meaning. In contrast to Saul Kripke's skeptical and communitarian solution, which grounds the legitimacy of "green" in conformity with the practice of the linguistic community, the solution presented here is not social, but individual and normative. A rational agent, according to this perspective, should discard "grue" even if they were the only member of their community to do so. Justification does not depend on conformity to an external practice, but on the application of a principle of internal epistemic coherence, thereby responding more directly to the challenge of normativity.

The fifth comparison is with the Bayesian approach. The Bayesian approach shifts the problem to the justification of prior probabilities, arguing that the "grue" hypothesis should have a much lower "prior." The solution presented here offers an elegant justification for precisely this assumption. It provides the reason why the prior for "grue" should be zero or close to zero: the hypothesis itself is built on an illegitimate basis, a belief about the future that contaminates the description of present data. The solution presented here, in these terms, does not merely postulate a low prior, but grounds it in a principle of epistemic rationality, thereby resolving the "problem of the priors" that undermines this approach.

The sixth comparison is with Davidson's appeal to nomological constraints. Unlike Donald Davidson's appeal to nomological constraints, according to which

projectible predicates are those "made for each other" within a mature scientific theory, the solution presented here operates at a more fundamental level. For Davidson, projectibility is an emergent feature of a coherent theory; for the solution presented here, the non-projectibility of predicates like "grue" is a precondition for the construction of any coherent theory. The solution presented here acts as a primary epistemic filter, explaining why our mature nomological systems do not contain "grue-like" predicates: they are discarded from the outset, at the level of the description of evidence.

Ultimately, the proposed solution distinguishes itself by operating at the level of evidential belief formation, a step logically prior to Goodman's historical projection, the assignment of Bayesian probabilities, and Quine's metaphysical inquiry. By proposing a rule that "purifies" evidence of illegitimate inductive presuppositions, this paper offers a way out that not only dissolves the "grue" paradox but also reinforces the thesis that Goodman's true legacy was to have forced us to rigorously examine not only our inferences, but the very beliefs on which those inferences are based.

7. Conclusion

This paper has presented a systematic deconstruction of Nelson Goodman's "new riddle of induction," undermining the three pillars of his argument. It has been shown that the parallel between the justification of deduction and that of induction is flawed by the fundamental disanalogy between the non-ampliative character of the former and the ampliative nature of the latter, thereby reaffirming the relevance of the problem of justification as posed by Hume. Subsequently, the validity of the a priori distinction between lawlike and accidental generalizations has been challenged, showing that our inductive practice legitimately treats any observed regularity as potentially lawlike, thereby undermining Goodman's critique of Humean habit.

The core of this paper, however, lies in the deconstruction of the "grue" paradox. It has been argued that its origin lies not in an inescapable dependence on language, but in the employment of epistemically illegitimate beliefs in the description of the evidence. The classification of an observation as "grue" is intrinsically dependent on an unjustified presupposition about the future. The proposed solution, therefore, consists in adopting a normative criterion that operates at a level logically prior to the inductive inference: for a description of evidence to be valid, it must be temporally neutral and uncontaminated by beliefs that already embed an inductive hypothesis.

This epistemological solution not only dissolves the "grue" paradox without recourse to problematic metaphysical (Quine), pragmatic (Goodman, Putnam, Kripke), or nomological (Davidson) commitments, but also redefines Goodman's legacy. His true contribution was not to have posed a "new riddle," but to have inadvertently demonstrated with extraordinary lucidity the depth of the old one. The "grue" example does not challenge induction itself, but rather Goodman's attempt to ground it on a set of privileged inferences. Ultimately, the paradox does not teach us that inductive validity depends on the contingency of our language, but that the Humean challenge is even more radical than one might have thought: our very perception of the present can be so easily contaminated by unjustified presuppositions about the future that, without a rigorous epistemic hygiene, any attempt to project the past into the future becomes logically incoherent. Goodman's work, therefore, does not dissolve Hume's skepticism, but ultimately reinforces it decisively.

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