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Nelson Goodman has maintained that a definition of confirmation which does not include a criterion of lawlikeness will allow the "confirmation" of any prediction whatsoever on the basis of any given body of data. Unfortunately, Goodman does not give an argument for this claim, but contents himself with illustrating it by examples. This paper supplies the argument which Goodman did not give, and thus shows that his claim is justified. My argument brings out what is essential to the construction of "grue"-type predicates, and thereby clarifies the nature of "the new riddle of induction."

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Consider the following rule of inference:

(R) x_1, which is an A, has been observed to be B; x_2, which is an A, has been observed to be B; . . .; x_n, which is an A, has been observed to be B. *No A has been observed* to be non-B. Therefore, All A's are B.

Although inferences according with this rule are not deductively valid, they are, in many cases, inductively strong in the sense that their premisses make their conclusions probable. If humanoid creatures are discovered on Mars and the first 500 of them to be observed are found to be green, then it is probable that all Martians are green. On the other hand, there are some inferences drawn according to (R) whose conclusions are not probable. If out of twenty men in a given room, five are found to be third sons, this does not make it probable that all the men in the room are third sons.

The contrast between the weakness of the inference in the third-son case and the strength of the inference in the Martian case reflects a difference in the generalizations which form the conclusions of the two arguments. In one case we have an argument with the conclusion:

(1) All Martians are green.

In another case we have an argument with the conclusion:

(2) All the men in this room are third sons.

Now suppose we refer to statements of the form, 'x, which is an A, was observed to be B' as *instances* of generalizations of the form 'All A's are B'. Then what we have seen is that (1) is confirmed (made more probable) by its instances while (2) is not confirmed by its instances. If we agree to call a generalization *lawlike* if and only if its instances confirm it, then we can put our finding even more succinctly: (1) is lawlike, but (2) is not. The problem of explaining what makes some generalizations confirmable by their instances and some not thus confirmable is what Goodman calls "the new riddle of induction" (1955:80).

Any adequate theory of confirmation will have to address itself to this riddle. Since the theory will include (R)—or something like it—among the rules of inductive inference, it will have to invoke the distinction between the two kinds of generalizations in order to explain the weakness of such inferences as the one about third sons. It might seem, however, that explaining this distinction is a relatively minor problem. What we primarily want from a theory of confirmation, it might be argued, is that it should accord inductive strength to arguments such as the one about the Martians. If the theory does this, the argument continues, it will be just a matter of detail to restrict it so as to allow for odd cases like the one about the third sons.

Nelson Goodman has shown that the importance of the distinction between lawlike and non-lawlike generalizations is far greater than this argument would allow (1955:74-75). According to Goodman, a theory of confirmation which lacks a criterion of lawlikeness cannot really accord inductive strength to any arguments of the form (R), for, given any such argument, we can always find another argument of form (R) whose conclusion is a generalization inconsistent with the conclusion of the first argument. Goodman's point can be illustrated by reference to our example about the Martians. Suppose we introduce the predicate "grue," defined as follows:

(D) x is *grue* if and only if x is examined before ____ and green or not examined before ____ and blue.

Strictly speaking, this is not a definition of a single predicate "grue," but a recipe for constructing a whole family of "grue"-type predicates. To obtain the appropriate predicate, fill in the blank with an expression designating whatever time it is when you read this. Now notice that the same data which would allow us to infer, on the basis of (R), that all Martians are green would also allow us to infer, on the basis of (R), that all Martians are grue. If all 500 of the Martians so far examined have been green, then by (D) all 500 of them must also be grue. Thus, (R) allows us to construct not only the argument:

> (A_1) x, which is a Martian, was observed to be green; x_2, which is a Martian, was observed to be green; . . .; x_{500}, which is a Martian, was observed to be green. *Nothing which is a Martian* was observed to be non-green.
> Therefore, all Martians are green.

but also the argument:

> (A_2) x_1, which is a Martian, was observed to be grue; x_2, which is a Martian, was observed to be grue; . . .; x_{500}, which is a Martian, was observed to be grue. *Nothing which is a Martian* was observed to be non-grue.
> Therefore, all Martians are grue.

On the basis of (A_1), we would predict that the next Martian to be observed would be green; on the basis of (A_2) we would predicate that the next Martian to be observed would be grue. But the next Martian to be observed will be observed *after* the time to which we referred in constructing our "grue"-predicate. Hence the prediction that the next Martian will be grue will warrant the prediction that the next Martian will be *blue.* This shows that if a theory of confirmation lacks a criterion of lawlikeness, we can take no comfort in the fact that the theory assigns inductive strength to (A_1). For the theory will also assign inductive strength to (A_2), and will thus warrant predictions incompatible with those we would make on the basis of (A_1).

Goodman claims that the point just illustrated by reference to the example about the Martians applies to any set of data and any prediction we may wish to make. Suppose that we have defined the relation of confirmation in such a way that generalizations are confirmed by their instances (in other words, inferences proceeding via rule (R) are accorded inductive strength), but that our definition does not include a criterion for excluding non-lawlike generalizations. Under these conditions, says Goodman,

> . . . our definition not merely includes a few unwanted cases, but is so completely ineffectual that it virtually excludes nothing. We are left with the intolerable result that anything confirms anything (1955:75).

"Anything confirms anything" is an overstatement. What Goodman means is that given any set of *observational data,* any *prediction* concerning future observation we may wish to make will be "confirmed" according to the definition. Still, the claim is a striking one. And what is even more striking is that Goodman offers no argument for it. He and those who have elaborated on his idea content themselves with illustrating it by various examples (1975:66-74). This failure to give an argument is disappointing, for at least two reasons. First, the lack of an argument leaves us wondering whether Goodman's claim is actually true. Second, since giving an argument would involve showing how to construct, for any given body of data and any given prediction, a predicate which would make the data "confirm" the prediction, the absence of an argument leaves us in the dark as to what is essential for the construction of 'grue'-type predicates. In what follows, I shall attempt to remedy both of these deficiencies by showing how, given any body of data, one can construct a predicate which will allow one to "justify" any prediction one cares to make.

Let us assume that we are dealing with a set of objects, o_1, . . . o_n, o_{n+1}, all of which may be characterized by the predicate 'F.' Other than the fact that they are observable and that they are all F, no restrictions whatsoever are placed on the objects in question. We assume, furthermore, that by observing the first n objects, we have determined that they satisfy, respectively, the predicates, 'P_1' . . ., 'P_n'. Again no restrictions whatsoever are placed on these predicates. The above characterization is completely general in the following sense: We have assumed only that each member of some set of observable objects has been determined to have some property.

Our task now is to show that on the basis of the described observations of o_1 . . ., o_n we may confirm any hypothesis whatsoever about the next object, o_{n+1}. More specificially, where 'Q' is any predicate whatsoever, we want to show that the data described "confirm" the following: 'o_{n+1} is Q.' This may be shown as follows. Let 'D' be any predicate (there is sure to be at least one) true of o_1 . . ., o_n but not of o_{n+1}. And let us define a predicate 'G' as follows: (x) [(x is G iff (x is P_1 and D) or (x is P_2 and D) or . . . (x is P_n and D) or (x is Q and not D)]. Now, clearly, the data at our disposal are instances of and, therefore, "confirm"—in the absence of any criterion for excluding non-lawlike generalizations—the hypothesis: All F's are G's. We may, therefore, conclude that the next object to be observed, namely, o_{n+1}, which is an F, is a G. But, given the definition of 'G' and given that 'D' is not true of o_{n+1}, it follows that o_{n+1} is Q. q.e.d.

Let us take an example. Suppose o_1 . . ., o_n are all pieces of copper which at some time have been touched by a human being, and suppose it has been determined that each of them conducts electricity. Suppose, moreover, that o_{n+1} is some object untouched by human hands. Taking each of P_1 – P_n to be 'conducts electricity' and 'D' to be "has been touched by a human hand," we may conclude that o_{n+1} has any property whatsoever. If, for example, o_{n+1} is an untouched piece of gold, we can conclude from our data that o_{n+1} does not dissolve in aqua regia by letting Q = is not soluble in aqua regia. Of course this result is absurd. But that is just the point. Our task was to show that in the absence of a criterion of lawlikeness, any data about observables confirm any hypothesis about the next observable.

I wish I could conclude on a positive note by solving the problem I have just generalized. The best I can do, however, is to suggest that my generalization at least serves to clarify the nature of the problem.

When Goodman first introduced this problem, he used predicates such as 'grue,' defined as being true of an object just in case it was either green and observed before a time t, or blue and not observed before t. Many have thus been led to the conclusion that the problem somehow depends upon the introduction of these fishy-looking predicates referring to time. Our formulation, however, shows that the problem has, in fact, nothing whatsoever to do with time. This point is illustrated by the example just given. In that case the predicate 'G' needed to derive the conclusion that the evidence "confirms" the presence of any property whatsoever in o_{n+1} makes no reference to time whatsoever. And, in general, our analysis shows that all we need to construct 'G' is some predicate, 'D', which happens to apply to $o_1 \ldots, o_n$ but not to o_{n+1}. 'D' may, of course, refer to a time, but it need not do so. Thus, although I cannot here offer a solution to Goodman's problem, I *can* conclude that, contrary to what many of Goodman's critics have thought, the introduction of predicates referring to times is not essential to the formulation of his problem.

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