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Presuppositions and the Paradoxes of Confirmation

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PRESUPPOSITIONS AND THE PARADOXES OF CONFIRMATION

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In his discussion of the paradox of the ravens,[1] Mark Sainsbury takes the paradox to show the falsity of the following principle:

> **G1.** A generalisation is confirmed by any of its instances.

The other possibilities, he argues, are to accept the paradoxical conclusion, or to reject the other principle involved:

> **E1.** If two hypotheses can be known *a priori* to be equivalent, then any data that confirm one confirm the other.

The paradox runs as follows. We are asked to consider the following generalisation:

> **R1.** All ravens are black.

According to Sainsbury, this is *a priori* equivalent to:

> **R2.** Everything nonblack is a nonraven.

We now discover a white shoe, and record the following truth:

> **P1.** This nonblack thing is a nonraven.

By G1, P1 confirms R2, and hence, by E1, confirms R1 too. But this is supposedly absurd: finding a white shoe does not confirm that all ravens are black.

I agree with Sainsbury that rejecting E1 is not a viable option. But I disagree that there is anything wrong with the original response given by Hempel[2] — to accept the conclusion — *once it is understood just what is involved*

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[1] Sainsbury (1995), §4.1.2. With regard to his discussion of the paradoxes of confirmation, there is little change from the 1st to the 2nd eds.
[2] Hempel (1945).

in asserting the equivalence between R1 and R2. For a crucial premise in the argument leading to the apparent paradox is clearly that R1 and R2 are indeed equivalent, which of course opens up the further possibility (unconsidered by Sainsbury) of responding to the paradox by rejecting this. On certain construals of R1 and R2, we should do just this; but if we do accept the equivalence, then it turns out to be unsurprising that a white shoe, or indeed anything else, except for a nonblack raven, confirms that all ravens are black.

The issue turns on the *presuppositions* involved in assertions of R1 and R2 on particular occasions of use. One way of exhibiting possible differences here focuses on the *existential import* of the subject terms of R1 and R2. For if R1 and R2 are construed as *lacking* existential import (on a given occasion of use), then they can indeed be formalised in a way that reveals their equivalence:

R1*. $(\forall x)\ (Rx \rightarrow Bx)$.
R2*. $(\forall x)\ (\neg Bx \rightarrow \neg Rx)$.

But if R1 and R2 are construed in such a way that their subject terms *possess* existential import, then their formalisation in modern logic shows that they are *not* equivalent:

R1#. $(\forall x)\ (Rx \rightarrow Bx)\ \&\ (\exists x)\ Rx$.
R2#. $(\forall x)\ (\neg Bx \rightarrow \neg Rx)\ \&\ (\exists x)\ \neg Bx$.

These might be read as follows:

R1'. There are ravens and all of them are black.
R2'. There are nonblack things and all of them are nonravens.

Since the first can be true and the second false if there are no nonblack things, and the first can be false and the second true if there are no ravens, the two propositions are *not* equivalent, and the paradox is defused. P1 confirms R2' but not R1'. If, on the other hand, R1 and R2 are construed as *lacking* existential import, and hence as being equivalent, then P1 confirms both propositions equally. If this conclusion *seems* counterintuitive, then that is only because we implicitly have in mind the alternative construal.

A similar solution can be reached, and the philosophical rationale behind the strategy reinforced, by considering the different *domains of discourse* that may be involved in our actual use of R1 and R2. Let us assume for the moment that R1 and R2 *are* equivalent, as formalised by R1* and R2*. A further result must be noted. For R1* is also equivalent to the following:

R3*. $(\forall x)\ (\neg Rx \vee Bx)$.

This can be read as follows:

R3. Everything is either not a raven or black.

Given G1 and E1, then, anything whatever, except for nonblack ravens, confirms that all ravens are black — not just black ravens, but white shoes and black socks as well.

This makes clearer just what is involved in the construal of R1 as R1*. For the use of quantifier notation *presupposes a domain of discourse over which the quantifiers range*. In Frege's original use of quantifier notation, the domain of discourse was indeed the domain of everything, and a statement of the form 'All *A*'s are *B*' was precisely construed as a statement about the whole domain. To make this explicit, R1 might be re-expressed thus:

R1†. Everything is such that it is black-if-a-raven.

Since it is true of a white shoe that it is black-if-a-raven, then P1 confirms R1†. But if this *is* how we interpret statements of the form 'All *A*'s are *B*', then it is not at all surprising that a truth about a particular object in the domain, whatever that object may be, confirms or disconfirms a statement made about everything in that domain.

But once again, this is not the only possible interpretation of R1, and in normal circumstances, when using a sentence of the form 'All *A*'s are *B*', we do *not* intend to refer to everything in the universal domain, but rather to the objects of some more limited domain. In the two minimal cases, when stating that all ravens are black, I might only be referring to the domain of ravens, and when stating that all nonblack things are nonravens, I might only be referring to the domain of nonblack things. In these cases, then, the two interpretations of our use of R1 and R2 might be expressed thus:

R1". Take the domain of ravens: everything in that domain is black.
R2". Take the domain of nonblack things: everything in that domain is a nonraven.

Clearly, in the first case, only black ravens will confirm the generalisation; whereas in the second case, only nonblack nonravens will confirm the generalisation. The result is the same as when construing the propositions with existential import (compare R1" and R2" with R1' and R2'): R1 and R2, so interpreted, are *not* equivalent, and the paradox is defused.

The message is clear. When understanding our use of sentences of the form 'All *A*'s are *B*', we need to appreciate the *presuppositions* involved. Since our use of R1 and R2 normally involves *different* presuppositions — it is only in artificially constructed formal languages that they are assimilated — they are not equivalent, and the paradox is resolved. There is therefore no need to reject the principle of confirmation G1. A generalisation *is* confirmed by any of its instances; it is just that we are not always clear exactly what the generalisation is.

Sainsbury's own discussion of the paradox of the ravens immediately precedes his discussion of Goodman's paradox;[3] and I suspect that his rejection of G1 in the former case was at least partly motivated by his desire to respond to the latter paradox, for which he also holds an unqualified form of G1 responsible. But if it is not G1 that is to blame for the paradox of the ravens, then is it likewise blameless in the case of Goodman's paradox; and if so, what is responsible instead? The similarities between the two paradoxes are obvious. In both cases, G1, and either E1 or an analogue, are operative, together with two generalisations of the form 'All *A*'s are *B*' and a purported instance of each generalisation. So if the solution to the paradox of ravens is right, then there ought to be a similar solution to Goodman's paradox.

The two generalisations are the following:

A1. All emeralds are green.
A2. All emeralds are grue.

An object is *grue* if it meets either of the following two conditions:[4]

Gr1. It is green and has been examined;
Gr2. It is blue and has not been examined.

We now examine a particular emerald, and record the following truth:

B1. This emerald is green.

Since the emerald has been examined, by Gr1 this is equivalent to:

B2. This emerald is grue.

The analogue of E1 can be stated as follows:

E2. If two statements can be known *a priori* to be equivalent, then any generalisation that is confirmed by one is confirmed by the other.

By G1, B1 confirms A1 and B2 confirms A2. But by Gr1, B1 is equivalent to B2, and so by E2, must confirm A2 too. But A1 and A2 are incompatible (on the assumption that there are unexamined emeralds), since A1 implies that unexamined emeralds are green and A2 implies that unexamined emeralds are blue, by Gr2.

What we have here is a genuine contradiction, and not just a counterintuitive conclusion. So there must clearly be something wrong with one of the premises. It might seem that we must indeed reject, or at least qualify, G1 in

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[3] Sainsbury (1995), §4.1.3.
[4] Cf. Sainsbury, (1995), §4.1.3, p. 82. Variations on the definition of 'grue' are irrelevant here.

order to avoid the paradox. But once again, there is a crucial assumption (left implicit in Sainsbury's own discussion), consideration of which provides us with an alternative response. The crucial assumption is that B1 and B2 are equivalent; but is this really so? B2 certainly follows from B1, and vice versa, *but only given that the emerald is examined*. If B1 *is* true, then in deriving B2, we should make the additional assumption explicit and record the particular truth thus:

B2'. This examined emerald is grue.

In asserting B2 *on the basis of* B1, in other words, there is the *presupposition* that the emerald has been examined, which, for the purposes of considering what is confirmed, requires recognition, entailing that B2 be modified to B2'. And B2', of course, only confirms the following generalisation:

A2'. All examined emeralds are grue.

Since A2' does not imply A2, the paradox does not arise. Finding a green emerald does not confirm that unexamined emeralds are blue.

That B1 and B2 are not equivalent is evident from the start. For if we have an unexamined green emerald in front of us (having been mined and placed in a sealed box by a machine, say), B1 is true and B2 false; and were we to have an unexamined blue emerald in front of us, B1 would be false and B2 true. So how can anyone have thought that a paradox arises? The answer is that B1 and B2 are assumed to be equivalent on the particular occasion of examining a green emerald. But even on such an occasion, our uses of B1 and B2 are not on a par: B2 only follows from B1 *given that the emerald is examined*. So the most that can be confirmed is that all *examined* emeralds are grue.

Now the standard response to any 'obvious' solution that is offered to Goodman's paradox — pointing out that our use of 'green' and 'grue' are not on a par — is to show, through ingenious redescription, that the apparent asymmetry is illusory. The naive response that 'green' is just 'simpler' than 'grue', for example, is readily answered by defining 'green' in terms of 'grue'. [An object is 'green' if it is either grue and examined or bleen and unexamined; where an object is 'bleen' if, in our terms, it is blue and examined or green and unexamined.] Here too it might be suggested that the supposed asymmetry is spurious. For if the emerald *is* examined, then surely B1 also requires modification:

B1'. This examined emerald is green.

But if, in suggesting this, the thought is that B1' and B2' are the most that we are entitled to assert, then there is again no longer a paradox. For B1' only confirms:

A1'. All examined emeralds are green.

But A1' and A2' are not incompatible.[5] Of course, what is now at issue is the legitimacy of the transition from A1' to A1 and from A2' to A2. They cannot both be legitimate. But this is just the problem of induction; there is no paradox here.[6]

However, the crucial point is that if the emerald *is* green, then B1 is the *basic* truth, and B2 the *derivative* truth requiring better expression as B2'; so the asymmetry does still obtain. But what if the emerald is really *grue*, so that B2 is true? In this case B2 is the basic truth and B1 the derivative truth requiring better expression as B1'. But we should not see this as restoring the symmetry in the situation, since we now have a *different* situation: what is now confirmed is A2 and not A1. What all this points to is the need to distinguish between the *semantic* and *epistemological* issues. *If* it is true that this emerald is green, then of course A1 is confirmed (in the technical sense captured by G1); and *if* it is true that this emerald is grue, then of course A2 is confirmed. This is the *semantic* point; and recognition of this is enough to resolve the paradox in its standard form. But what has not been addressed is the *epistemological* problem as to how we can *know* that the emerald is really green or grue. Perhaps whenever we examine an emerald, that very exami-

[5] A similar objection has been put to me by suggesting that 'This emerald is examined' is *analytic*, its having been examined being implicit in the use of the demonstrative. If this were so, then B1 would indeed immediately imply B2, the 'extra' assumption being already part of the 'content' of B1. But if this *is* what is presupposed, then, to repeat, all that is confirmed is that all *examined* emeralds are green/grue. However, I see no reason to suppose that all uses of this sentence do involve this presupposition. Suppose, for example, that all emeralds are naturally found in a crystalline encasing. We could still *refer* to an encased (and hence unexamined) emerald by using the demonstrative 'this'. We just couldn't *know* that 'This emerald is green' is true without breaking the casing (i.e. examining it). Demonstratives function no differently from any other kind of referring expression: different presuppositions may be involved on different occasions of use. The move from B1 to B2 in the supposed paradoxical situation does involve a shift in presupposition. To appreciate this, just think of replacing 'This emerald' by a suitable definite description, e.g. 'The emerald in front of me'. 'The emerald in front of me is grue' clearly does only follow from 'The emerald in front of me is green' on the additional assumption that the emerald in front of me has been examined.

[6] The problem of induction in this case may be stated thus: what justifies the transition from 'All examined *A*'s are *B*' to 'All *A*'s are *B*'? The 'answer' is simple: a guarantee that no *A*'s are *B in virtue of* being examined (which, of course, is precisely what we fail to have in the case of Goodman's paradox). But to say this is only to make a *semantic* remark: we still need to assure ourselves, in any particular case, that there *is* this guarantee, which is the epistemological problem. (In fact, there is no *one* problem of induction, but an indefinite number of individual problems, each of which requires its own empirical response.) In his discussion (1995, §4.1.3), Sainsbury himself recognises the centrality of the *in virtue of* condition. My only point here is to show that we can respect this obvious insight without having to abandon the principle of confirmation G1.

nation *turns it* from blue to green, so that it is really grue. So perhaps we cannot *know* what is confirmed and what is not. But what we do know is that *if* the emerald is green, then 'All emeralds are green' is confirmed (though not, of course, proved).

Goodman's paradox can thus be seen as raising the structurally *inverse* problem to the paradox of the ravens. In the latter case, the problem concerned the supposed equivalence of the two generalisations (R1 and R2); in Goodman's paradox, the problem concerns the supposed equivalence of the two particular truths (B1 and B2). Rejecting these equivalencies, by showing how they involve, on actual occasions of use, different presuppositions, resolves the paradoxes. The principle of confirmation G1 is not itself to blame. A generalisation *is* confirmed by any of its instances; it is just that we are not always clear exactly what the generalisation or instance is. Of course, as already indicated, what lurks in the background to all this is the *epistemological* problem of induction, but if the account offered here is right, then the paradoxes of confirmation themselves, at least in their standard form, are *semantic* problems, and as such, readily resolved.[7]

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[7] I am grateful to Peter Millican, Peter Mott and Mark Nelson for comments on an earlier version of this paper.