Phil 2: Puzzles and Paradoxes

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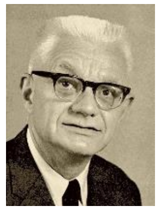
Lecture 13.1
Understanding the Confirmation Paradox



Carl Gustav Hempel (1905–1997)

Hempel was a German philosopher who taught at the Universities of Chicago, CUNY, Yale, Princeton and Pittsburgh. His main area was the philosophy of science.

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Absolute vs. Incremental Confirmation

- The verb "to confirm" is used in two ways.
- **Absolute confirmation**: definitive proof, removal of beyond reasonable doubt
- **Incremental confirmation**: provide evidence for, support, count in favor, increase the probability of.
- We will assume the incremental sense of "to confirm."

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- When does some evidence support (count in favor of, incrementally confirm) a hypothesis? For example, what would count as evidence for the hypothesis that all ravens are black?
- If a body of information constitutes some evidence (however slight) for a hypothesis, it (incrementally) confirms the hypothesis.
- The attempt to say when a body of information confirms a hypothesis is called "confirmation theory."

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Three Notions of Evidence

- Classificatory (qualitative) evidence: We ask whether a body of information confirms (is evidence for or supports) a given hypothesis.

- E.g., is the fact that the moon's surface appears blotchy through the telescope evidence that there are craters on the moon (as Galileo claimed in 1610)?

- Quantitative evidence: We assess the degree to which a body of information confirms or supports a hypothesis.

- E.g., to what extent is Galileo's hypothesis about the lunar surface supported by his telescopic observations.

- Comparative (relational) evidence: We ask whether a body of information confirms a certain hypothesis more than some body of information supports a competing hypothesis.

- E.g., does the fact that the moon's surface appears blotchy through the telescope support the hypothesis that the moon contains craters more than it supports the hypothesis that the telescope distorts the light coming from the moon (as Galileo's critics insisted).

Classificatory Evidence: E confirms H
Quantitative Evidence: the degree of confirmation of H on E is U
Comparative Evidence: E confirms H more than E confirms H*

Question: When does a body of information provide classificatory evidence for a general claim?

Instance Condition

IC. A generalization is confirmed by any of its instances

Examples of generalizations:

- All emeralds are green.
- Whenever the price of gasoline falls, its consumption rises.
- Everyone I have spoken to this morning thinks that the Democrats will win the next election.
- All AIDS victims have such-and-such a chromosome.

- IC is also called “Nicod‘s criterion“

IC. A generalization is confirmed by any of its instances

- The Instance Condition says that your evidence for a generalization is stronger the more instances of it your total body of knowledge contains – provided that it contains no counterinstances.
- According to the Instance Condition, any instance makes a positive contribution, however slight, and however liable to be outweighted by other factors, towards constituting classificatory and quantitative evidence.
- According to the Instance Condition, a single instance confirms but it may not settle the matter. A single instance may not show that it is rational to believe the generalization.

- When a generalization has the form

  All As are Bs

  An instance of it is any proposition of the form

  This A is a B

- A counterinstances of a generalization “All As are Bs“ is a proposition of the form

  This A is not a B

- The opposition of confirmation is disconfirmation. An extreme case of falsification. A generalization is falsified by any counterinstance of it.

Equivalence Condition

EC. If two hypotheses can be known a priori to be equivalent, then any data that confirm (disconfirm) one hypothesis also confirm (disconfirm) the other.

- Something can be known a priori if it can be known without appeal to experience. Example: knowing that all bachelors are unmarried. (See lecture 1.4, slide #2).
- Equivalence: if either hypothesis is true, so is the other, and if either one is false, so is the other.
- If two propositions are connected by the phrase "if, and only if", they are equivalent. (See lecture 10.1, slide #5)

It is a priori knowable that any two of these three hypotheses are equivalent:

R1 All ravens are black $\forall(x)[R(x) \rightarrow B(x)]$

R2 There are no ravens that are not black

R3 Everything non-black is a non-raven/
All non-black things are non-ravens $\forall(x)[\sim B(x) \rightarrow \sim R(x)]$

If R1 is true, so is R2. Also if R1 is true, any non-black thing is not a raven, or, as R3 puts it, is a non-raven. So if R1 is true, so is R3. Suppose R1 is false. Then some ravens are not black, contrary to R2. It also means that some things that are not black are not ravens, so R3 is false too. R1, R2 and R3 are equivalent.

Paradox of the Ravens

1) A brown shoe confirms the hypothesis that all non-black things are non-ravens. (IC)
2) The hypothesis that all non-black things are non-ravens is equivalent to the hypothesis that all ravens are black. (EC)

C) Therefore, a brown shoe confirms the hypothesis that all ravens are black.

The conclusion seems absurd. Data relevant to whether or not all ravens are black must be data about ravens. The color of shoes can have no bearing whatsoever on the matter. Thus IC and EC – apparently acceptable principles – lead to an apparently unacceptable conclusion.




Alternative formulation of the raven paradox:

1)The theses:
- R1 All ravens are black
- R3 All non-black things are non-ravens

2)If two hypotheses are equivalent, then any datum that confirms the one must also confirm the other – and will do so to the same extent.

3)A black raven will confirm R1 and analogously a non-black non-raven (such as a brown shoe) will similarly confirm R3.

4)But intuitively a brown shoe does not confirm R1.

- The problem is that a brown shoe should confirm R3 to the same extend as it confirms R1.
- What's the best way to find support for R3? Looking at things which are not black will not get you very far, since they are so numerous and varied.
- The best way to confirm R3 (and hence R1) is to look for ravens and see what color they have, since there are far fewer ravens than non-ravens.

Possible Solutions to Confirmation Paradox

- Denial of the Equivalence Condition
- Acceptance of the apparently unacceptable conclusion (Hempel's solution)
- Denial of the Instance Condition