

Comments on Wheeler's "Focused Correlation and and Confirmation"

Peter Brössel
Formal Epistemology Research Group
Department of Philosophy and Zukunftscolleg
University of Konstanz

Content

1. Setting the Stage for my Comments
2. Wheeler on Confirmation and Focused Correlation
3. Comments on Focused Correlation
4. Confirmation, Focused Correlation and Coherence
5. On the Relationship between Coherence and Confirmation

I. Setting the Stage for my Comments

I agree with Wheeler that:

1. we should relax our requirements on the relationship between the propositions and the reports.

Because

- we do not always get the information from independent information sources and
- we also want to judge the coherence of information sets containing propositions for which we did not receive any reports (i.e. inferential beliefs).

I. Setting the Stage for my Comments

Peter Brössel

2. we should change our focus from the question whether the hypothesis is probable in the light of the evidence to the question whether the evidence (incrementally) confirms the hypothesis.

Because

- it is the best way to block the Klein-Warfield argument against coherence and thereby defend the everyday scientific practice of adding beliefs to our belief system.

Wheeler changes our focus

from: the justification of beliefs with the help of
testimonial reports



to: the assessment of hypotheses in the light of the
evidence (perhaps with the justification of beliefs as a
special instance).

2. Wheeler on Confirmation and Focused Correlation

Wheeler defines the confirmation of the hypothesis H
by the evidence E , $c(H,E)$, as follows:

$$c(H,E) := p(H \wedge E)/p(H) \times p(E) = Coh(H,E)$$

Thus, confirmation is correlation, i.e. coherence.

According to Wheeler the relationship between
confirmation and focused correlation is the following:

$$c(H, E_1 \wedge \dots \wedge E_n) =$$

$$\prod_{1 \leq i \leq n} Coh(H, E_i) \times For_H(E_1, \dots, E_n)$$

Wheeler's interpretation of For_H :

"The focused correlation of A and B relative to a
hypothesis h [...] tells us what impact there is on the
confirmation of h , if any at all, from combining A and
 B ." (Wheeler (2008), p. 11)

3. Comments on Focused Correlation

A better interpretation: Focused correlation tells us
how much a hypothesis increases the coherence of the
evidence.

Confirmation depends on three factors:

1. $\prod_{1 \leq i \leq n} Coh(H, E_i)$
2. $Coh(E_1, \dots, E_n | H)$ (the conditional coherence of E_1, \dots, E_n given H)
3. $Coh(E_1, \dots, E_n)$ (the coherence of E_1, \dots, E_n)

Side Note: Wheeler's result fits our intuitions (under the given interpretation):

A hypothesis becomes plausible when it makes observations fit together (cohere) which resist to fit together under the assumption that the theory is false.

Wheeler's result displays why Myrvold (2003) defined how much a hypothesis H unifies the evidence E_1, \dots, E_n as follows:

$$\log(\text{For}_H(E_1, \dots, E_n))$$

4. Confirmation, Focused Correlation, and Coherence

Conclusion 1: Ceteris Paribus [c. p.] how much the hypothesis increases the coherence of the evidence has a positive impact on the confirmation of the hypothesis (the only conclusion Wheeler offers).

Conclusion 2: C. p. the coherence of the evidence has a negative impact on the confirmation of the hypothesis (this conclusion strengthens the result of Shogenji (2007)).

Conclusion 3: C. p. the coherence of the evidence has a positive impact on the confirmation of the hypothesis by the individual evidence.

We also want to ask: does the coherence of the hypotheses influence the confirmation of the hypotheses by the evidence?

Now let $H = H_1 \wedge \dots \wedge H_m$ and let us take a look at $c(H_1 \wedge \dots \wedge H_m, E)$.

$$\begin{aligned} c(H_1 \wedge \dots \wedge H_m, E) = \\ \prod_{1 \leq i \leq m} \text{Coh}(H_i, E) \times \\ \text{Coh}(H_1, \dots, H_m | E) / \text{Coh}(H_1, \dots, H_m) \end{aligned}$$

So we come to (almost) the same conclusions:

Conclusion 1: C. p. how much the evidence increases the coherence of the hypotheses has a positive impact on the confirmation of the hypotheses.

Conclusion 2: C. p. the coherence of the hypotheses has a negative impact on the confirmation of the hypotheses.

Conclusion 3: C. p. the coherence of the hypotheses has a positive impact on the confirmation of the individual hypotheses by the evidence.

5. On the Relationship between Coherence and Confirmation

"There is no direct relationship between correlation and confirmation but there is an indirect one [...]" [Wheeler (2008) p. 11]

13

There is a direct relationship between correlation (or coherence) and confirmation:

Confirmation is Coherence!

This is trivially true since Wheeler defined confirmation this way.

In the following I am going to introduce some alternative formulations of the relationship between confirmation and coherence.

14

Another way to state the relationship between confirmation and coherence is:

$$c(H_1, E_1 \wedge \dots \wedge E_n) > c(H_2, E_1 \wedge \dots \wedge E_n) \Leftrightarrow$$

$$\text{Coh}(H_1, E_1, \dots, E_n) > \text{Coh}(H_2, E_1, \dots, E_n)$$

A further alternative is:

$$c(H_1 \wedge \dots \wedge H_m, E_1 \wedge \dots \wedge E_n) = \text{Coh}(H_1, \dots, H_m, E_1, \dots, E_n) / \text{Coh}(E_1, \dots, E_n) \times \text{Coh}(H_1, \dots, H_m)$$

15

In order to establish a substantial link between confirmation and coherence Wheeler has to show that $\text{Coh}(H, E)$ is an adequate measure of confirmation.

At least it fulfills the following minimal conditions:

1. *Coh* favors true theories over false theories
2. *Coh* favors logically stronger true theories over logically weaker true theories

after finitely many steps of observation and for every observation thereafter.

16

Side Notes: The requirements are taken from Huber (2008) and the results can be proved using the convergence results of Gaifman/Snir (1982) or Schervish/Seidenfeld (1990).

These requirements are fulfilled by the coherence measures by Fitelson (2003) and Olsson (2002), too.