

An Optimality-Argument for Equal Weighting

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ABSTRACT



The traditional proposals to resolve the problem of epistemic peer disagreement concentrate on the question of how to incorporate evidence of such a disagreement. The main positions in this field are the *equal weight view*, the *steadfast view*, and the *total evidence view*. Here, we provide a *new argument* in favour of the equal weight view by showing how it results from a general approach of forming epistemic attitudes in an optimal way. By this, the position can be massively strengthened from reasoning via epistemic indifference to reasoning from optimality.

DEFINITIONS



- **disagreement:** A believes p , B believes $\neg p$ or $Pr_A(p) \neq Pr_B(p)$ or ...
- **peers:** A and B * share all relevant evidence e and * have equal inferential skills regarding e
- **evidence sharing:** update on same e : $Pr_A(p|e), Pr_B(p|e)$
- **inferential skills:** via reliabilities as track record
- **problem of peer disagreement:** * how to update not only on e * but also on $Pr_A(p|e) \neq Pr_B(p|e)$?
first order evidence
higher order evidence

FRAMING

A common way of framing the problem is via an *opinion poll*. A common way of opinion polling is *linear weighting*. So, a common framing of the problem for a group of *peers* is via a *weighted average* (w) of the individual credences Pr (cf., e.g., Brössel & Eder 2014):

$$Pr_A(p|e) = w_A \cdot Pr_A(p) + Pr_B(p) \cdot w_B$$

In case A and B are *peers*, the three classical proposals are:

EQUAL WEIGHT VIEW (ewv)

Suggestion : $w_A = w_B$

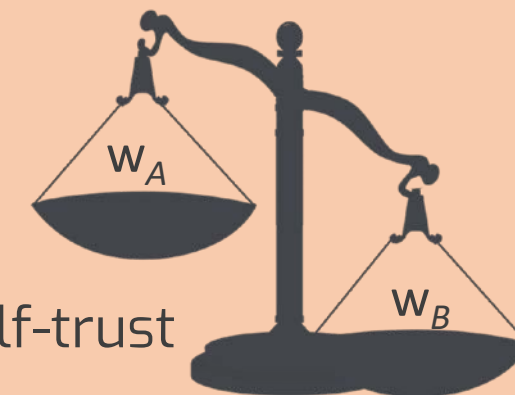
Argument + : epistemic indifference
Argument - : spineless, lack of self-trust, etc.
Adherents : e.g. (Christensen 2007), (Elga 2007)



REMAIN STEADFAST VIEW (rsv)

Suggestion : $w_A = 1$
 $w_B = 0$

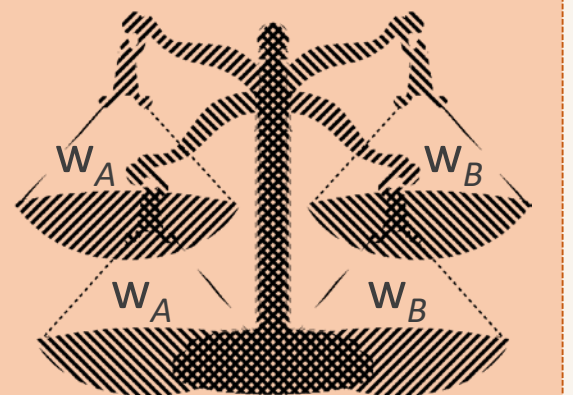
Argument + : vs. being spineless and lack of self-trust
Argument - : bootstrapping, etc.
Adherents : e.g. (Rosen 2001)



TOTAL EVIDENCE VIEW (tev)

Suggestion : no fixed rule for determining w_A & w_B

Argument + : handles lots of counterexamples
Argument - : no systematic account, etc.
Adherents : e.g. (Kelly 2011)



THE MAIN ARGUMENT

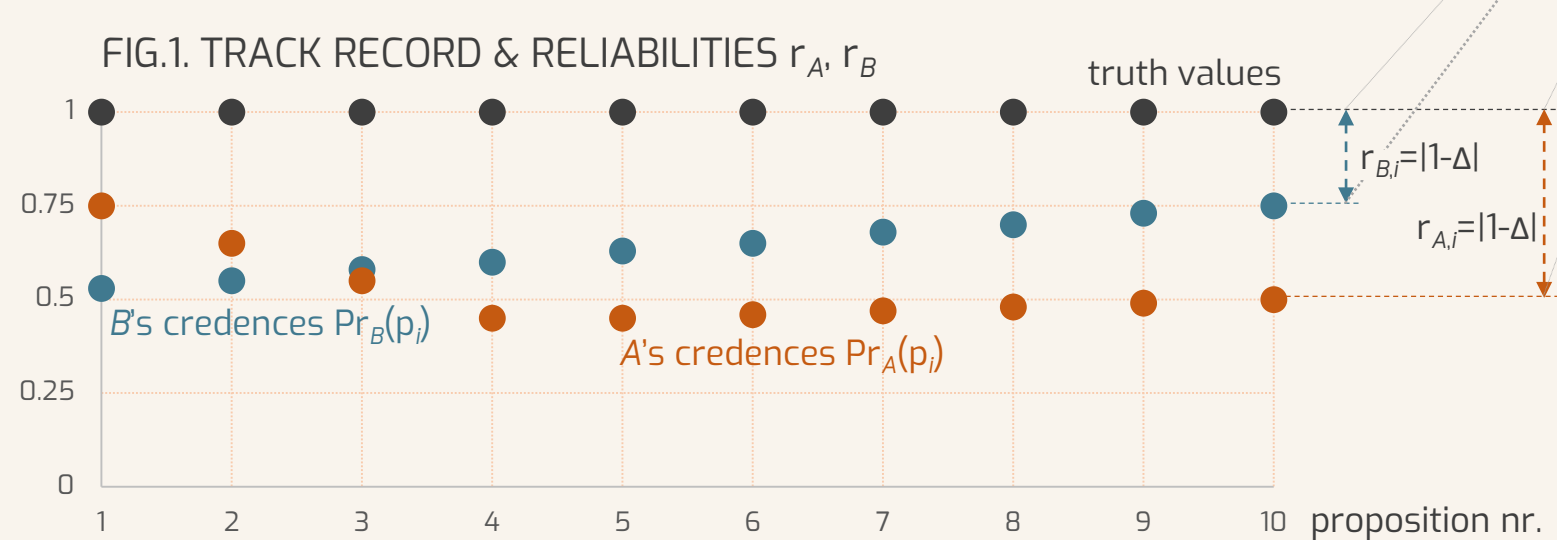


1. Epistemic aim: Achieve a **most reliable** accessible method.

SCHEME: $E(Pr_A(p) = Pr_{mrel}(p))$

We stated that inferential skills are measured via reliabilities (r) and reliabilities are calculated out of a track record.

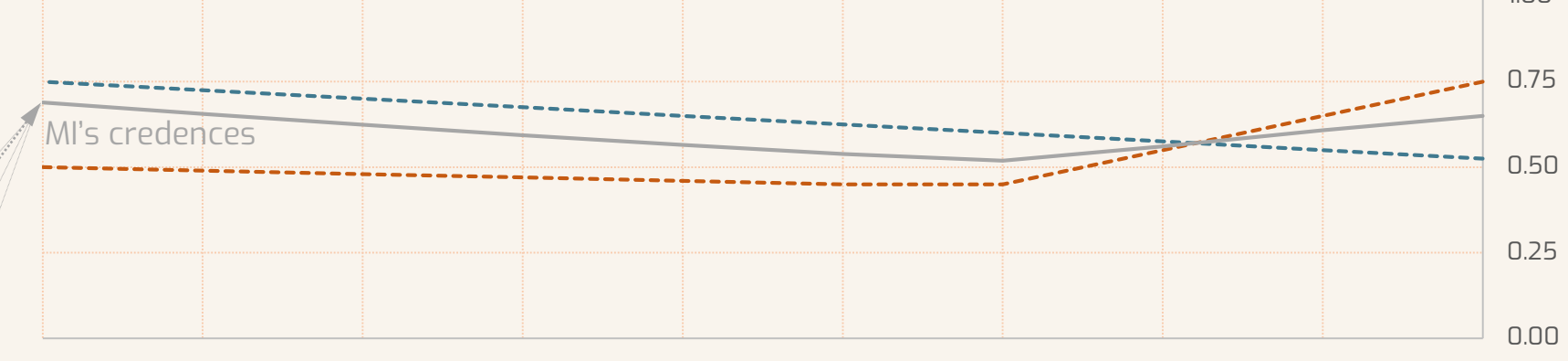
For each individual in the framework we keep track of her epistemic attitudes regarding relevant propositions of the domain and compare them with the truth.



2. The most reliable accessible method is an **optimal** method.

SCHEME: $(Pr_{mrel}(p) = Pr_{opt}(p))$

FIG.2. META-INDUCTION & HIGHER ORDER EVIDENCE



The theory of *meta-induction* (mi) shows how one can incorporate higher order evidence in form of reliabilities for forming credences in an *optimal way* (cf. Schurz 2008).

MAIN IDEA: use reliabilities for weighting ($r_A, r_B \Rightarrow w_A, w_B$)

MAIN RESULT: Optimality of mi: $\lim_{i \rightarrow \infty} (r_{mi,i} - r_{(A|B),i}) \geq 0$

ie. mi is most reliable in the long run

3. Responding with the **equal weight view** is a necessary means to be optimal, whereas a response in the line of the **remain steadfast view** or the **total evidence view** is not.

SCHEME: $(Pr_A(p) = Pr_{opt}(p) \square \rightarrow Pr_A(p) = Pr_{ewv}(p))$

$(Pr_A(p) = Pr_{opt}(p) \not\rightarrow Pr_A(p) = Pr_{rsv}(p))$

$(Pr_A(p) = Pr_{opt}(p) \not\rightarrow Pr_A(p) = Pr_{tev}(p))$

REASON: In case of peer disagreement *ewv* coincides with the meta-inductive response, whereas *rsv* and *tev* deviate.

individual	remaining collective	guarantee for individual
equal weight view	equal weight view	optimal
equal weight view	remain steadfast view	optimal
equal weight view	total evidence view	not optimal
remain steadfast view	ewv / rsv / tev	not optimal
total evidence view	ewv / rsv / tev	not optimal

4. Hence, by **means-ends reasoning**: The equal weight view is justified (epistemically aimed at), whereas remaining steadfast or taking into account the total evidence is not.

SCHEME (means-ends reasoning): from $E(\varphi)$ and $(\varphi \square \rightarrow \psi)$ infer $E(\psi)$

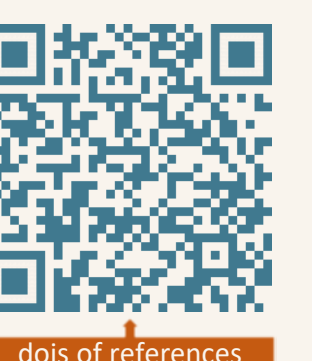
1. & 2. 3. 4.

This argument covers also an *expansion* of the equal weight view to cases of disagreement among *non-peers* (cf. Elga 2007).

Here, the suggestion is to not demand *equality* among the weights ($w_A = w_B$), but *equality* among weights and reliabilities: ($w_A = r_A, w_B = r_B$).

As outlined in 2., exactly this is done by meta-induction.

CONCLUSION



- Peer disagreement as a problem of updating on *higher order evidence* is a problem of *weighting*.
- One argument for choosing equal weights stems from *epistemic indifference*, which is quite weak.
- We add a *new argument* supporting the choice of equal weights by employing *optimality results* of the theory of meta-induction.

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I would be happy to discuss this with you – I am around!



Further Information & Illustrations:

More information is accessible via the QR CODES. Simply scan the code with your camera App to open the links.

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