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# Commentary on “Conclusions as Hedged Hypotheses”

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John H. Welch’s paper provides a reminder that the evaluation of natural language arguments, understood as abstract inferential objects rather than as dialectical processes, ever appeals to *some* normative standard. Next to the more commonly distinguished standards of *deductive soundness* and *inductive cogency*, Welch particularly addresses the—far less-often discussed, but therefore *prima facie* no less important—standard of *plausibilistic credibility*. His paper shows how this standard can be operationalized, moreover treats the projection of numerical measurement-values of plausibilistic credibility onto natural language terms, here also dealing with imprecise measurement, and critically points to incomparability issues.

The basic idea motivating his title is this: cognitive agents do *not* simply endorse, or believe, premises or conclusions *tout court!* They rather tend to “hedge” them, in the sense that a speaker as much as a hearer attends to their cognitive contents *as a matter of degree*—thus treating any such content as expressing less than a *thesis*, i.e., a *hypothesis*. The very idea, of course, sits well with current research in epistemology, where talk of “degrees of belief” has by now become so normal that few still take issue with it. This at least holds broadly, the sole current exception perhaps being the formally as well as interpretation-wise extremely powerful, formal framework of ‘ranking functions’ (Spohn, 2012), where the dynamics of differentially retractable *full* beliefs are modelled at ordinal scale-level, rather than partial beliefs being modeled at ratio scale-level. But let this pass!

Welch’s constructive contribution is to have offered an operationalization of plausibilistic credibility. He proceeds by distinguishing two qualities of an argument, ARG, itself consisting of premise- and conclusion-statements, namely ARG’s *inductive strength* (*I*), on one hand, and—more narrowly—the *epistemic strength* (*E*) of its premises, on the other. Here, *I* measures the extent to which ARG’s premises confer support onto its conclusion in the standard inductive sense of probability-raising. Hence, the probability of the conclusion given the premises, or the reasons, that are offered in support of C, in form:  $P_1(C|P)$ , must exceed the probability of the conclusion *simpliciter*, in form:  $P_0(C)$ , so that  $P_1(C)=P_1(C|P) > t \geq P_0(C)$  holds whenever the premises do in fact lend such support to the conclusion. (The subscripts 0 and 1 indicate *prior* and *posterior* probabilities and where, normally, the threshold  $t \geq 0.5$ .) In fact, Welch demands for inductive cogency, and similarly for plausibilistic credibility, that  $P_1(C|PRE) > P_1(C^*|PRE)$ , where C\* is a distinct conclusion, while PRE is the same premise set, for *any* C\*.

Besides this otherwise standard condition of inductive support, which currently is a “hip item” in the so-called ‘Bayesian approach to argumentation’, *E* provides a *distinct* measure for what Welch calls the ‘epistemic probability’ of the premises—something not considered *as a distinct measure* in the Bayesian approach, but to some extent implicitly conceded there as well (see below). Broadly, “Bayesians” consider the probability-value that is assigned to a given premise or conclusion to express the amount of doubt one entertains with respect to the content of a given statement.

Drawing both measures, *E* and *I*, together—either of which may also be called a *dimension*—then guides the overall evaluation of an argument, in the sense that “[j]oint consideration of these dimensions [*E*, *I*] yields a reasoned view of the degree of credence appropriate to the argument’s conclusion” (p. 2). As Welch also shows, one obtains limiting-case relations such that, if premises are true, then *deductive soundness* is a limiting-case of *inductive cogency*, which in turn is a limiting-case of *plausibilistic credibility*. For whenever the *E*-measure assigns the value “true” to an argument’s premise-set, then deductive soundness is the upper limit of inductive strength in virtue of having assigned a maximal value on the *I*-measure, and similarly, he suggests, when inductive strength is the upper limit of plausibilistic credibility.

Crucially, since one now employs two measures in argument-evaluation, *I* and *E*, one needs to prepare for the expectable, namely: incomparability, in the sense that, for ARG-1 we may have it that the *E*-value > *I*-value, while for ARG-2 we may have it that the *I*-value > *E*-value, independently of whether these values are expressed quantitatively (in numbers) or qualitatively (in words). However, no *principled* solution to *genuine* incomparability is known.

Now seeking after a critical comment, consider this perhaps over-naïve question: *why* does the distinction between *E* and *I* seek to mirror the distinction between the content and the form of an argument, being itself all too familiar from deductive inference (see p. 9)? That is, *why* attempt evaluating *I* and *E* independently, and then seek ways of aggregating the *E*- and the *I*-result into a final evaluation. The Bayesian program, by contrast, avoids just this, and goes straight for the content! (See, e.g., Hahn & Corner, 2013.) Here, one considers  $P(\phi)$  as resulting from an amalgamation of *whatever* considerations “go into” subjectively evaluating the credence value for a premise, and similarly considers  $P(\psi|\phi)$  as resulting from such an amalgamation for a conditional belief, i.e., for the dynamic case. This occurs on the assumption that degrees of belief in a conclusion (but at times also in the premises) *change* as reasoned responses to the contents that the premises convey. This program, then, would not, I take it, be very impressed by an attempt at *separating* epistemic considerations from inductive considerations. One would rather seek to consider the “epistemic side of the coin” as having to do with premise *statics*, and the inductive side as having to do with the support that premises confer, i.e., as a *dynamic* issue, which in turn will *lead to* changes in epistemic matters. So both aspects here remain (deeply) intertwined, and yet produce an evaluation of *any* argument in terms of a final degree of belief in its conclusion, given a degree of belief in the premises. This evaluation can then be compared to that of other arguments based on the same, or partially, or entirely different premises.

This is an open forum, of course. So I would like to invite the author—whose paper, no doubt, has taught me—to perhaps reply in ways that might fill the void this commentator is left with. In brief: Why exactly go *this* route? Plus, what might a worked out example look like?

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