Comments on “Against a Contextualist Belief-First Theory of Credence” by Andrew Moon

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(I would like to begin by thanking Professor Moon for his work, and the chair, organizers, and attendees for their parts in this event.)

Given that the work I am commenting on, “Against a Contextualist Belief-First Theory of Credence,” is framed in terms of Moon and Jackson’s 2020 paper “Credence: A Belief-First Approach,” I will be referring to both pieces during this commentary.

These papers are about the ontology of credence. It is said that credence is a sort of belief. But what is *belief*?

The first footnote to the 2020 paper states that talk of “degrees of belief” is avoided due to dispute as to whether beliefs come in degrees. But if it turned out that beliefs *did* come in degrees, what would that mean for a belief-first theory of credence? The authors spend some time considering alternatives for the *content* of belief, but they do not say explicitly what they mean by the term. Note that “credence” is defined as: “something like degree of confidence” (p.652) (I will use the term “partial belief” to refer to the same thing.) Though left undefined, we can figure out what Moon takes beliefs to be by seeing how he talks about them.

Moon considers his belief-first account of credence as opposed to credence-first theories of belief and *dualist* theories which take beliefs and credences both to exist, perhaps with differing use-cases. Also represented is eliminative materialism, wherein (and I quote from Churchland 1981, one of Moon and Jackson's two canonical references for the view) "our commonsense conception of psychological phenomena constitutes a radically false theory… the ontology of that theory will eventually be displaced… by *completed neuroscience*" (p.67, emphasis added).

There is an unconceived alternative, wherein beliefs are merely *attributed*, and, though this is an empirical question, it may be that "there is no process in the brain correlated with associating or with thinking; so that it would be impossible to read off thought-processes from brain-processes" (quote from *Zettel* §608). This does not mean that the terms are not *useful*, but, in this case, it doesn't really make sense to ask whether "belief" or "credence" is ontologically, as opposed to historically, prior, and dualism is true insofar as the concepts may perhaps exist separately.

Now, we could still *model* belief and credence, and compare the models formally, in place of either belief or credence in-itself (which, again, we need not presuppose exist in order to make the concepts work). For instance, we may stipulate that an agent's "beliefs" are a collection of formulas in some language (say, first order logic). Perhaps this collection is distinguished by its use by the agent in serious deliberation, and we model it with a set. Then, if credences are "partial beliefs," they will correspond to measures on that set (I say "measures," rather than "probability distributions," because Moon does not assume that credences are probabilistically coherent). And, if credences are "full beliefs," then they will be a sort of formula in that set.

Then, we may ask whether a system of statistical inference based on the first kind of credence is more/less/as expressive as a system based on the second kind.

This is very different from the project Moon is undertaking, as he takes the study of belief and credence to be something which should "explain our mental lives" (2020, p.653). He wants to reduce credence to belief, taking these to be mental states.

In any case, Moon inadvertently presupposes that a system of inference wherein credences are beliefs is no more expressive than one wherein credences are partial beliefs. This is because he formalizes updating on *evidence* (the relevant evidence, given either version of his contextualism) as conditional probabilities (see section 4). Of course, if credences are partial beliefs, then this is the only choice. But, if credences are full beliefs, we can also represent the import of evidence via entailment. Thus, full belief *can* be used to model imaging (and therefore, e.g., causal decision theory), but Moon leaves no room for this.

As a simple example, if credences are full beliefs, then an agent may believe some probability space P, which under evidence E updates to P' by Bayes' rule, and they may simultaneously believe a formula like E -> Q, where Q may differ from P'. Then, upon learning E, they will update P to P' (using the relevant representation of Bayes' rule) but they will also update on learning Q (by modus ponens), thus ruling out P' (if it differs from Q). This can be used to represent an agent with prior P *imaging* on E to yield Q, rather than *conditionalizing* to yield P'. In this way, a system of inference with credences as full beliefs is *more* expressive than one with credences as partial beliefs (if we formalize them the way I suggested above).

However, even if we take for granted that conditional probabilities really are the way evidence must (for whatever reason) come into play, Moon fails to be pluralistic about the *sort* of evidence relevant to contextualism. He summarizes his first premise as: "Either solipsistic contextualism is true or group contextualism is true" (p.10). And, though he defines group contextualism as "any version of contextualism that *allows for* evidence other than just the speaker's to count as a parameter" (p.6, emphasis added), in application he treats group contextualism as the view that the relevant proposition *must* take the group's evidence into account, as opposed to the individual's evidence.

For example: "...when Miles walks into the room your sentence *now expresses* the proposition that Cathy is probably in her office, given yours and Miles' evidence" (p.5-6, emphasis added), as opposed saying that your sentence *may now* express that proposition.

Or: "...the proposition your *sentence* expresses (according to group contextualism) is the proposition that *Cathy is probably in her office, given yours and Miles' evidence*" (p.8), as opposed to saying that it *may be* that proposition under group contextualism.

This has consequences — take the following example of Moon's:

> "Upon hearing you sincerely *assert*, 'Cathy is probably in her office,' it seems that Miles could naturally respond, 'Ah, so you believe that Cathy is probably in her office. But that's not probable. I saw her leave'" (p.9).

This case seems like it could be analyzed by reading Miles' response as: 'Ah, so you believe that Cathy is probably$_{\text{your evidence}}$ in her office. But that's not probable$_{\text{group evidence}}$. I saw her leave.' I.e. for some uses of the word "probably," the individual's evidence is relevant, and for other uses, the group's, or other individuals', etc. So, Miles acknowledges what you believe in the light of your evidence, and gives you more evidence which he knows will change your mind. Moon instead presupposes that only one *sort* of evidence can be relevant to determining the meaning of *all* instances of "probably," and this facilitates his problematization of the cases he considers, as he cannot give such analyses.

I think that in order to understand the semantic content of credences as beliefs in a more grounded way, we ought to get clearer on what credences *are*.

Moon takes a credence to be a belief in a formula like *Mp*, where *p* is a proposition and *M* is an "epistemic modal operator," but he fails to distinguish sufficiently between "epistemic" and "subjective" probability. The move to the "epistemic" is to meant to deal with cases like one where an agent first thinks it unlikely that 567*123=69741, but then thinks it quite likely, after doing a calculation. (This example is from the 2020 paper, p.656.)

He distinguishes his view from subjective probability by saying that "if 'probability' is to be understood as *subjective probability*… then the belief-first view would implausibly take credences to be beliefs about credences" (2020, p.655)

This is not the only place where Moon suggests that the theory of subjective probability takes credence as its basic object. For instance: “Decision theory traditionally takes credences as inputs, but it could just as well take beliefs about probabilities as inputs” (2020, p.659).

Decision theory, as it is usually conceived, only takes credences as inputs when being applied. The *foundations* of decision theory go the opposite direction. One begins with an ordering of preferences (on a space of propositions) which is then *represented* in terms of a utility and probability function (on that same space; I am referring to Jeffrey-Bolker style representation theorems). Furthermore, it is well-known that assigning an ordering which satisfies certain axioms can be *equivalent* to the assignment of probabilities (see, e.g., Jason Konek’s 2019 chapter “Comparative Probabilities”). In general, the theory of subjective probabilities need not be committed to the independent existence of credences, since it is shown that the preferences, or the betting strategies, etc. of an agent can be represented *using* probabilities.

Like this, it is more straightforward to take credences to be beliefs in, say, an exclusive disjunction over some propositions, together with a collection of formulas involving a binary ordering (relation) on those propositions, that ordering satisfying the right axioms (for granularity, we will also need to consider propositions like “a fair n sided die lands on side m”). This also allows for pluralism about what probabilities *are*. One can “get probabilities out of” beliefs about how comparatively surprising they take different propositions to be, should they turn out to be true (thus, subjective probabilities); or comparative beliefs about frequencies, propensities, etc.

(Of course, I am happy to discuss any of these issues further, thank you for your time and attention, and thanks again to Professor Moon, etc.)