The paper is not very clear and some aspects are confused. Furthermore, the author doesn't deeply enough discuss existing literature and the paper doesn't offer a significant enough contribution. I suggest rejection.

The main content of the paper is a discussion of the differences between two 'measures', the Euclidean metric and the Kullback-Leibler divergence, in order to discuss the belief update rules that can be motivated by considering such measures. Ultimately, though, the role that the two measures are playing in justifying the different update rules is very different and the author isn't clear about this. This makes the paper very confusing and its arguments misguided. Furthermore many of the features of the measures that are presented are well-known and not well enough motivated by the author. There is also a clear lack of discussion of the existing work on minimizing the Kullback-Leibler divergence as a method of justifying Jeffrey conditionalization except for one quick reference. It should be made explicit what the author's work is adding.

More detail

For a bit more detail of this difference between the roles the two measures are playing in motivating an update rule: In Leitgeb and Pettigrew [2010] Leitgeb and Pettigrew argue for a belief update rule (in Jeffrey-style scenarios) that differs from usual Jeffrey conditionalization and whose motivation in part relies on the use of the Euclidean metric. The Eucldean metric is used to justify the Brier score as an accuracy measure and then the LP update instead is based on the criterion to pick $P' \in C$ where $\mathrm{Exp}_P(\mathsf{BS}(P'))$ is minimized. For the Kullback-Leibler divergence, the role it plays in motivating Jeffrey conditionalization is that one should pick $P' \in C$ where $D_{KL}(P, P')$ is minimized. So the Euclidean metric is not playing the same role as D_{KL}. The author seems not to notice this as they say: 'Global inaccuracy reflects the Euclidean proximity relation', but minimizing expected inaccuracy with respect to some constraints is different to minimizing Euclidean distance from P with respect to those constraints.

This issue slips through because the author doesn't carefully define how the different update procedures are motivated in the LP case and in the proposal they are motivating. For a nice presentation of some of these facts, the author might be interested in Wroński [2016].

The main content of this paper comes through a list of desiderata for update rules and divergences that the update is to be motivated by. (Though, as already mentioned, the author is using these desiderata for the divergence in different ways as they're comparing the Euclidean metric and the Kullback-Leibler divergence which play different roles in justifying the update procedure). The author presents some reasons that these are desirable but doesn't do enough work on this front, and needs to be particularly careful about the role that the d is to play in order to determine what is desirable. Many of the facts are already known (as the author acknowledges, but s/he doesn't appropriately make clear what s/he is adding to that). The author also doesn't acknowledge subtleties of Leitgeb and Pettigrew's account, for example they acknowledge the fact that

conditionalization is not the limit case of this update but they think that these are different kinds of learning scenarios.

The Horizon principle is interesting and I'm not personally aware of deep discussion of this, but it's again specifically about some notion of distance instead of directly about the updating procedure. It would be good if it could be formulated directly as a principle about the update rule and one could then more easily judge its legitimacy in the context of a distance measure for justifying an update scenario. One might wonder if $d(P, P') := \mathrm{Exp}_P(\mathsf{BS}(P'))$ exhibits the Horizon effect.

Finally, it should be mentioned that the reliance on the geometry of reason has already been dropped by Pettigrew, see [Pettigrew, 2016, p.39]. So I think the paper should be given a different spin.

Minor comments for the author

- p5 Joyce doesn't say that a credence is inferior if it is inferior on all Bregman divergences. That would not work because of the Bronfmann objection. See, e.g. [Pettigrew, 2016, ch. 5]

References

Hannes Leitgeb and Richard Pettigrew. An objective justification of bayesianism II: The consequences of minimizing inaccuracy. *Philosophy of Science*, 77(2): 236–272, 2010.

Richard Pettigrew. *Accuracy and the Laws of Credence*. Oxford University Press, 2016.

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