# Indeterminacy and Imprecise Credences[*]

**Miriam Bowen**                                                                    MIRIAMSJBOWEN@GMAIL.COM

*Department of Philosophy, School of Philosophical, Anthropological and Film Studies, University of St Andrews, UK*

There are a variety of norms that purport to govern what attitude an agent ought to adopt depending on chance information, evidence available to the agent, accuracy considerations and so on. It is unclear, however, what attitude a rational agent ought to have towards an *indeterminate* proposition or whether there is a norm that prescribes an attitude. It is also unclear what falls under the term 'indeterminate'. This poster addresses the normative question of what attitude a rational agent ought to adopt towards cases of indeterminacy, what I will refer to as the *normative question*.

To do so, I defend the view that indeterminacy should be understood as an umbrella term that encompasses a range of related phenomena. In light of this, I argue we should adopt a position I call modest pluralism to the normative question. Modest pluralism holds that there is no unique attitude an agent ought to adopt to cases of indeterminacy, but rather a range of permissible attitudes to adopt. However, I also argue that logical norms do underlie what attitudes it is rational for an agent to have in general and this provides a general constraint on the types of attitudes it is permissible for a rational agent to adopt towards cases of indeterminacy. In particular, I defend the view that the permissible attitudes that an agent can adopt toward cases of indeterminacy are sets of credences[1]: $Cr = \{c_1, c_2, c_3, \dots\}$, where the $c_i$ are credence functions (precise probability functions)[2], and sets of sets of credences : $C = \{Cr_1, Cr_2, Cr_3, \dots\}$, where the $Cr_i$ are credal sets.

My pluralist position draws on and expands on Williams' [6] argument that in the case of indeterminacy there is normative silence. For Williams, there are no logical or normative constraints. This is in contrast to a variety of *monistic* accounts that offer a unique answer to the normative question (see [1, 2, 3]). These monist accounts offer a range of different answers to the normative question, often with implicit or explicit assumptions about the interaction of norms of indeterminacy with the underlying logic of rationality.

My account differs from Williams in that rather than leaving open the possibility of *any* norm of indeterminacy being permissible we can instead view normative silence as saying that in cases of indeterminacy there is silence between which of the preexisting *probabilistically* permissible attitudes one can take towards a proposition. I argue that an agent's *determinate* attitudes ought to be represented by a set of credences and indeterminate attitudes ought to be represented by a set of sets of credences.

I defend particular interpretations of the credal sets in each instance defending the view that the set of credences should be interpreted in comparative terms (see [4]). This interpretation takes the comparative information to be representative of an agent's attitudes (that is, we are interested in the information in terms of whether someone is more confident in *A* than *B* or equally confident, etc.). I also argue that the set of sets of credences should be interpreted in supervaluationist terms (see [5]). This interpretation treats each $Cr_i$ in the set as being a permissible precification of the agent's attitude. My answer to the normative question, therefore, presents an argument for a new integration and application of two distinct interpretations of imprecise probabilities as representative of rational agents' attitudes.

# References

[1] David Barnett. Is vagueness sui generis ? *Australasian Journal of Philosophy*, 87(1):5–34, 2009. doi:10.1080/00048400802237376.

[2] Michael Caie. Belief and indeterminacy. *Philosophical Review*, 121(1):1–54, 2012. doi:10.1215/00318108-1426355.

[3] Hartry Field. Indeterminacy, degree of belief, and excluded middle. *Noûs*, 34(1):1–30, 2000. doi:10.1111/0029-4624.00200.

[4] Mark Kaplan. In Defense of Modest Probabilism. *Synthese*, 176(1):41–55, 2010. doi:10.1007/s11229-009-9483-2.

[5] Susanna Rinard. Imprecise Probability and Higher Order Vagueness. *Res Philosophica*, 94(2):257–273, 2017.

[6] J. Robert G. Williams. Indeterminacy and normative silence. *Analysis*, 72(2):217–225, 2012. doi:10.1093/analys/ans034.

---

[1]By this I mean a set of probability measures or credal set.
[2]I will use the term credence interchangeably with degrees of belief / probability measures.