

# Identity and uncertainty in Everett's multiverse

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## Abstract

In the current debate on the concept of probability in the Everett interpretation of quantum mechanics Saunders and Wallace argue for a notion of pre-measurement uncertainty whilst Greaves and Myrvold attempt to do without uncertainty altogether. Both these approaches are controversial and I suggest a middle way. I develop in detail an argument which Wallace has hinted at and Greaves has seen as beside the point in order to show that Vaidman's concept of post-measurement uncertainty has more relevance to pre-measurement decision making than has hitherto been generally recognised. Further, Vaidman uncertainty leads naturally to another form of post-measurement uncertainty which clarifies the process of experimental confirmation of quantum mechanics in the Everett picture. I also stress the importance of Sider's theory of transtemporal identity in making Everett's multiverse intelligible.

**Keywords:** Everett, many-worlds, uncertainty, probability, identity, branching

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