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A learner's multiple views of the connection between mathematics and quantum mechanics VESAL DINI, DAVID HAMMER, Tufts Univ — Students' physical intuitions and prior knowledge are critical to making sense of and solving problems in classical mechanics. In quantum mechanics (qm), coordinating concepts connected to such everyday thinking becomes more difficult. How then can students develop coherence in their knowledge of qm? Consider how experts do it: they build meaning in, around, and through the mathematics of the theory. This view on the role of mathematics, which is one of among many possible to take, seems most productive for qm. In our work to characterize student views of knowledge that emerge in the context of qm coursework, we came to analyze one student who mostly adopted such a view until a shift in context moved him to express an alternative. We present his case and discuss important implications for instruction.

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