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Carlos R. Bovell* (carlosbovell@yahoo.com). *Developing an interest in the conceptual meaning of calculus*. Preliminary report.

The intermediate value theorem (IVT) is more often than not given in algebraic terms and then presented visually using Cartesian graphs. With the help of these two modes of presentation, the student is then encouraged and expected to apply the theorem numerically. Yet how might students be taught to process the theorem conceptually? Last year I experimented with an imaginative foray into a contemporary debate in epistemology and the students found it to be particularly illuminating for conceptually understanding and verbally articulating the substance of the IVT. After presenting and explaining an argument against fallibilism to my students, I asked them whether one of its key theses had any merit. They typically answered in the negative, although they generally found the matter of articulating specific reasons for their negative answer to be surprisingly difficult. And so I set out to express their negative answer in terms of a conceptual application of the IVT to epistemology. The students were particularly impressed with the potential relevance of the IVT to a totally unrelated field like philosophy. More importantly, the students began to develop an active interest in how to understand calculus conceptually. (Received July 21, 2008)