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Modeling by metaphor: how analogy is used in reasoning about current and resistance in an inquiry physics class KATHERINE DOERR MOROSKY, SAMANTHA KASPER, JILL MARSHALL, Univ of Texas, Austin — Scientists regularly use analogy to understand and communicate the intricacy of the natural world. More than just a language mechanism that allows borrowing from one domain to describe another domain, analogical reasoning has been described as generative process that creates inferential frameworks. Our research examines how physics students, when asked to describe a mental model of electric circuits, use analogy to reason about current and resistance. A majority of students conflated model with analogy, though they varied in the extent to which they relied on their analogy as an inferential framework for problem-solving. Why is this the case and what implications does it have for teaching about electricity?

Katherine Doerr Morosky
Univ of Texas, Austin

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