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Examining Concurrent Representation Choices Using Network Analysis[1] DARYL MCPADDEN, Florida Intl Univ, ERIC BREWE, Drexel University — As part of a larger study of students representation choices in Modeling Instruction (MI), this work focuses on what representations students use concurrently during problem solving. MI is a set of active learning curricula for introductory physics with explicit class time devoted to understanding, interpreting and using multiple representations as part of the model building process. In this study, 120 students from two sections of the electricity and magnetism course (MIEM) in Spring 2016 completed a survey of 25 physics problem statements pre- and post-instruction, covering both Mechanics and EM content. Rather than asking students to solve every problem, students were asked to simply list which representations they would use. Using network analysis, we determined what representations students frequently rely on together, what representations feed into others, and what representations serve as connectors between the various representations. Ultimately, these results have implications for further curriculum development and refinement.

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