

Abstract Submitted  
for the APR20 Meeting of  
The American Physical Society

**Probing and Supporting Student Reasoning Using Modified Chaining Tasks**<sup>1</sup> MACKENZIE STETZER, RYAN MOYER, University of Maine, J. CALEB SPEIRS, University of New England, BETH LINDSEY, Penn State Greater Allegheny, MILA KRYJEVSKAIA, North Dakota State University — As part of a larger effort to investigate and support student reasoning in physics, tasks have been designed that examine student ability to generate qualitative, inferential reasoning chains. In an online chaining task, students are provided with correct reasoning elements (i.e., true statements about the physical situation as well as correct concepts and mathematical relationships) and are asked to assemble them into an argument in order to solve a physics problem. Modified versions of the task, in which students are first asked to categorize the reasoning elements as being useful or not useful for solving the problem, have also been administered. Data from these modified tasks provide further insight into the extent to which some reasoning phenomena in physics may be accounted for by dual-process theories of reasoning (DPToR). Ongoing work is also exploring the potential of such modified chaining tasks to be integrated into research-based instructional interventions aligned with DPToR.

<sup>1</sup>This material is based upon work supported by the National Science Foundation under Grant Nos. DUE-1431940, DUE-1431541, DUE-1431857, DUE-1432052, DUE-1432765, DUE-1821390, DUE-1821123, DUE-1821400, DUE-1821511, DUE-1821561, and DRL-0962805.

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Date submitted: 10 Jan 2020

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