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Scott Friedman

Scott Friedman is a doctoral candidate studying with Kenneth Forbus in the Cognitive Systems division of the EECS Department. Scott's research focuses on developing autonomous systems and algorithms that efficiently restructure large amounts of conceptual knowledge over time. This process of restructuring – called *conceptual change* – is ubiquitous in human cognitive development and education. For example, when students learn Newtonian dynamics, they often have to overcome a preexisting theory of force (e.g. forces keep objects in motion) which is incorrect albeit productive for understanding the world. There is little agreement among cognitive scientists upon the cognitive processes underlying conceptual change, so a computational account can provide insight into human cognition. Scott is integrating analogical, qualitative, statistical, and heuristic reasoning algorithms to build a computational model of conceptual change. His systems have simulated human learning and belief revision in several domains, including everyday physics, biology, and astronomy. Scott's research is funded by a Northwestern University Cognitive Science Advanced Fellowship and a grant from the Office of Naval Research. For more information, visit Scott's academic website.

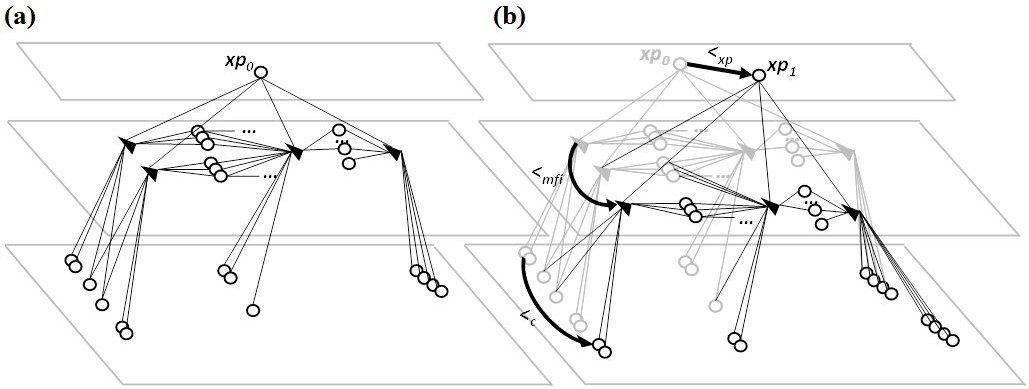

Figure: A portion of an explanation-based network. (a) Single explanation xp_0 for a situation (rightmost nodes). (b) After new knowledge is added, preferences are computed for new knowledge ($<_c$), new model fragment instances ($<_{mfi}$), and for the new explanation xp_1 ($<_{xp}$).

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