Learning sequential patterns from graphical programs

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Abstract

How do people learn complex rules? We introduce a novel paradigm called "Track-A-Mole", in which participants have to learn about and predict the moves of a cartoon mole, whose movements are generated by graphical programs. Our results show that participants can learn to predict richly structured programs, and often require only few observations to do so, showing rapid learning and early insights about the underlying patterns. Moreover, we found that how learnable a program is can be predicted by features related to its complexity and compressibility. Finally, participants also show interesting patterns of generalizations, assuming more parsimonious rules first and then gradually adjusting their predictions to more complex regularities, as well as matching their predictions to the general direction of movements and producing sensible errors. These results extend our understanding of complex rule learning and open up future opportunities to model sequential pattern predictions as graphical program induction.