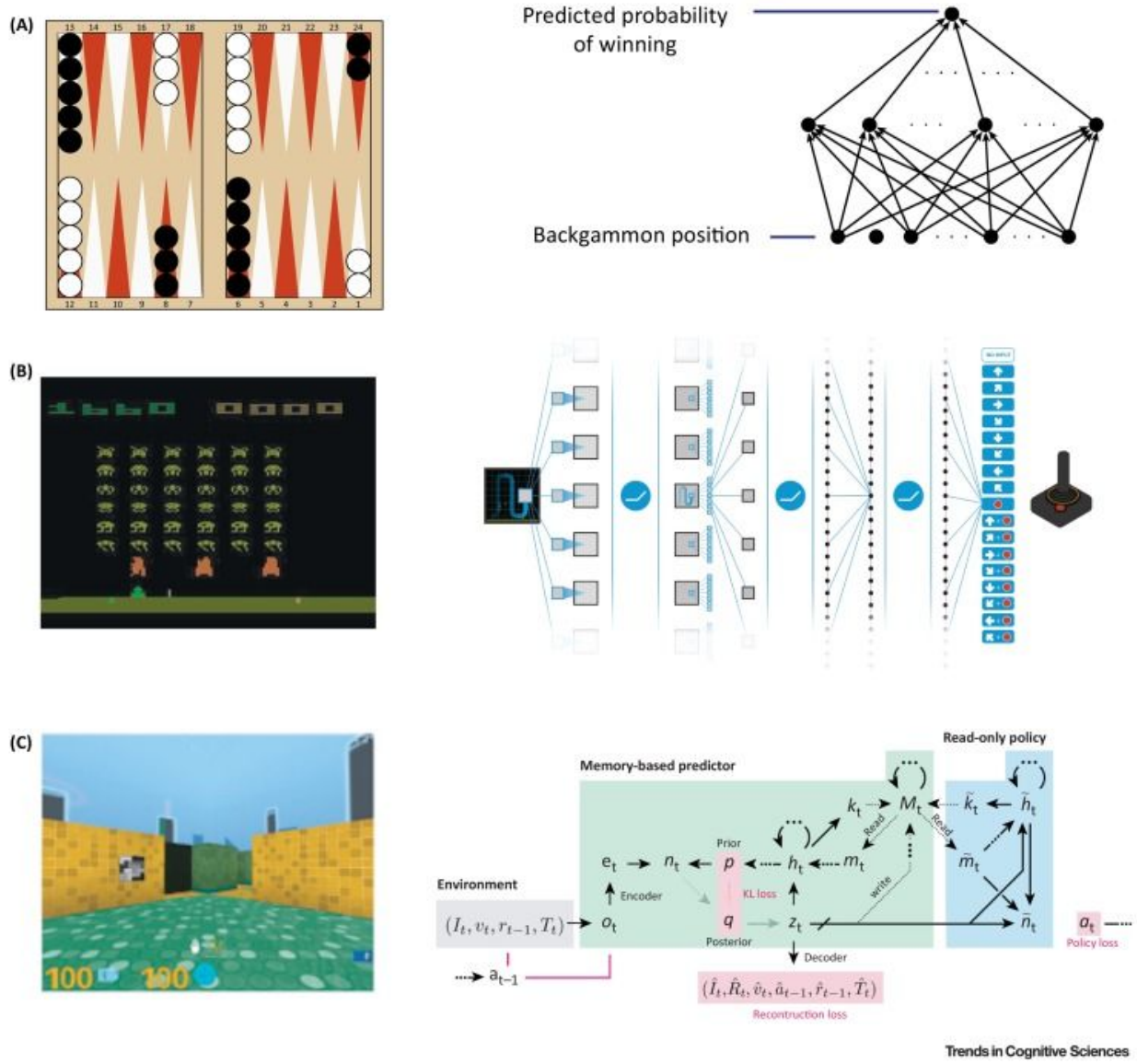
Reinforcement Learning, Fast and Slow

Overview

[Reinforcement Learning, Fast and Slow]

Quotation	**Comments**
This progress has drawn the attention of cognitive scientists interested in understanding human learning. However, the concern has been raised that **deep RL may be too sample-inefficient** – that is, it may simply be too slow – to provide a plausible model of how humans learn.	The comparison between Human and current DRL alogs shows there is a huge difference in terms of **samples efficiency** (how many samples are needed to achieve a certain performance): humans learn way faster than DRL
A key insight, arising from these AI methods, concerns the fundamental connection between fast RL and slower, more incremental forms of learning.	Insight: Meta Learning (Learning to Learn) is key



Different kinds of State Spaces
- Memoryless or Markov vs Stateful
- Low Dimensional Representation vs High Dimensional Representation (e.g. Images, Videos, ...)

(A) = Memoryless and Low Dimensional
(B) = Memoryless and High Dimensional (image = pixel based representation)
(C) = Stateful (the previous maze exploration history matters) and High Dimensional

Work in progress