Curriculum Effects in Multi-Schema Learning

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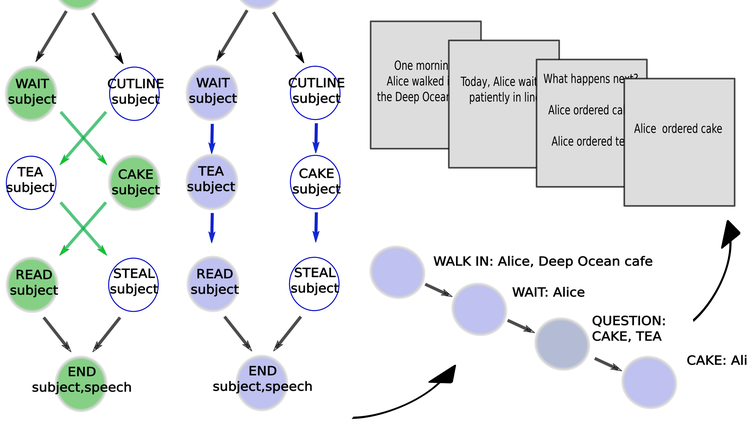
Event cognition theory

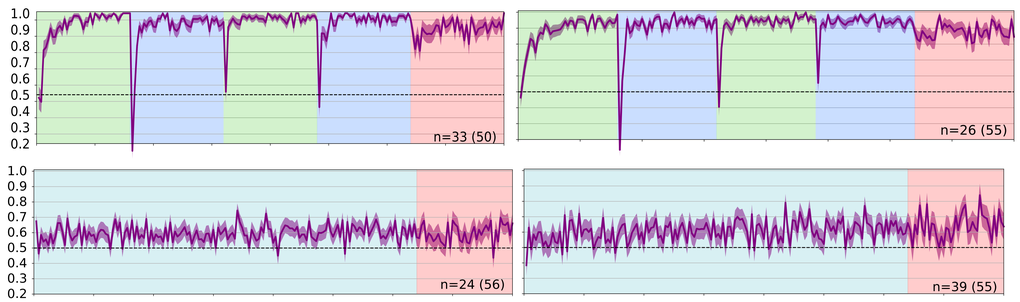
- Schemas are mental models used to make prediction. How are schemas learned and represented?
- Stability plasticity dilemma: when are two given events stored under the same or different schemas?
- Representational overlap allows generalization, but separated representations prevents catastrophic interference.
- How does the mind deal with the stability-plasticity dilemma?
- In event cognition theory, event segmentation (representational splitting) is driven by large prediction errors.

Paradigm

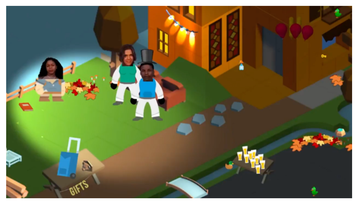
* 2AFC prediction paradigm
* algorithmically generated narratives
* manipulate curriculum
* measure learning and generalization

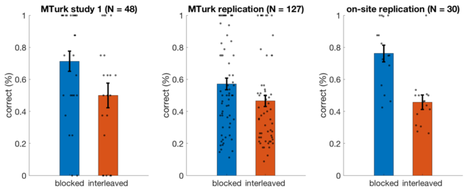


People learn in blocked but not in interleaved

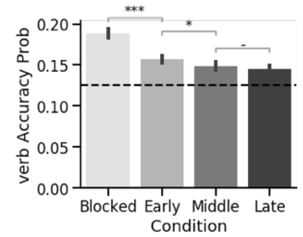


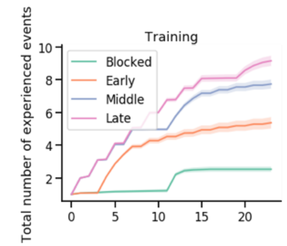
Conceptual replication: with naturalistic narratives



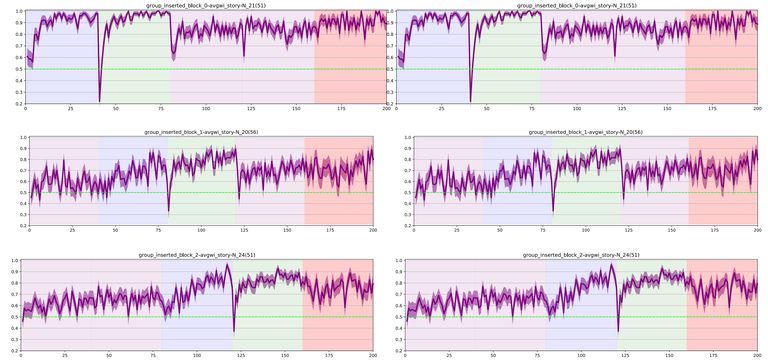


SEM prediction: inserting blocks before interleaving should drive large prediction errors necessary to carve nature at its joints

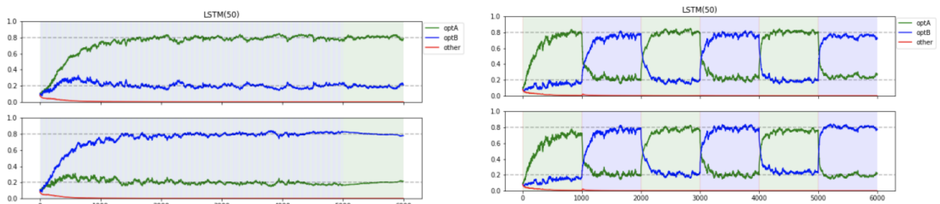




inserted blocks experiment confirms SEM prediction

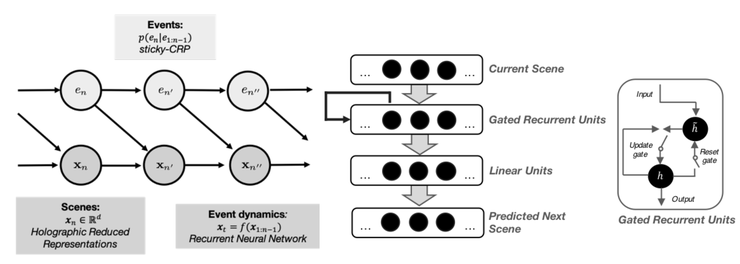


LSTM: catastrophic interference in blocked perfect performance in interleaved



Discussion & Future directions

Structured Event Memory [1]



Event cognition (SEM[1]): pattern of prediction errors drive appropriate segmentation in blocked