

AGI standard model

— a proposal

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0 Introduction

The “standard model” is a way of thinking, that may help us better understand the general theory of AGI systems.

The essence of the standard model is just to identify a **Working Memory** or “state” of the AGI system.

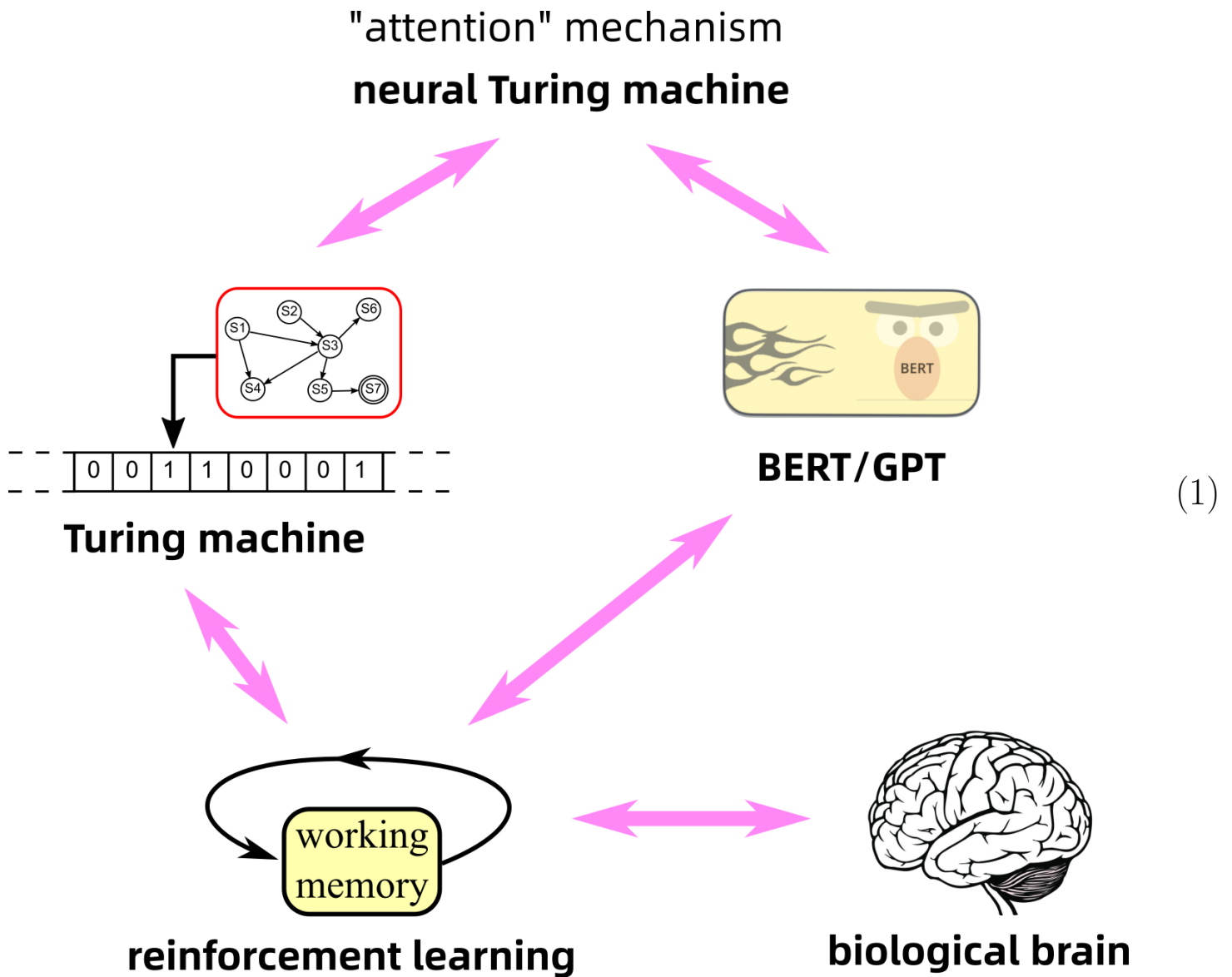
1 Reinforcement learning

The simplest form of a **dynamical system**:

When we add an “action” or “control” variable to it, it becomes the simplest **control system**:

which is the setting for Dynamic Programming or Reinforcement Learning.

2 Standard model



3 Neural Turing Machine and BERT

4 Relation to the biological brain

The prefrontal cortex maintains a number of “thoughts” with sub-populations or, perhaps, with **micro-columns**. These activated sub-populations are in competition with each other, through **lateral inhibition**. The thought(s) that win are the thoughts we retain – they “make sense”.

5 Abductive reasoning

Abductive reasoning is basically just **bidirectional** inference.

This harks back to the ART (Adaptive Resonance Theory) proposed by Grossberg and Carpenter beginning in the 1980s.

6 Dealing with assumptions

An assumption is a λ -term. It maps a **proof witness** to a new proposition.

For example, “If I play move x now, I will checkmate in 3 moves”.