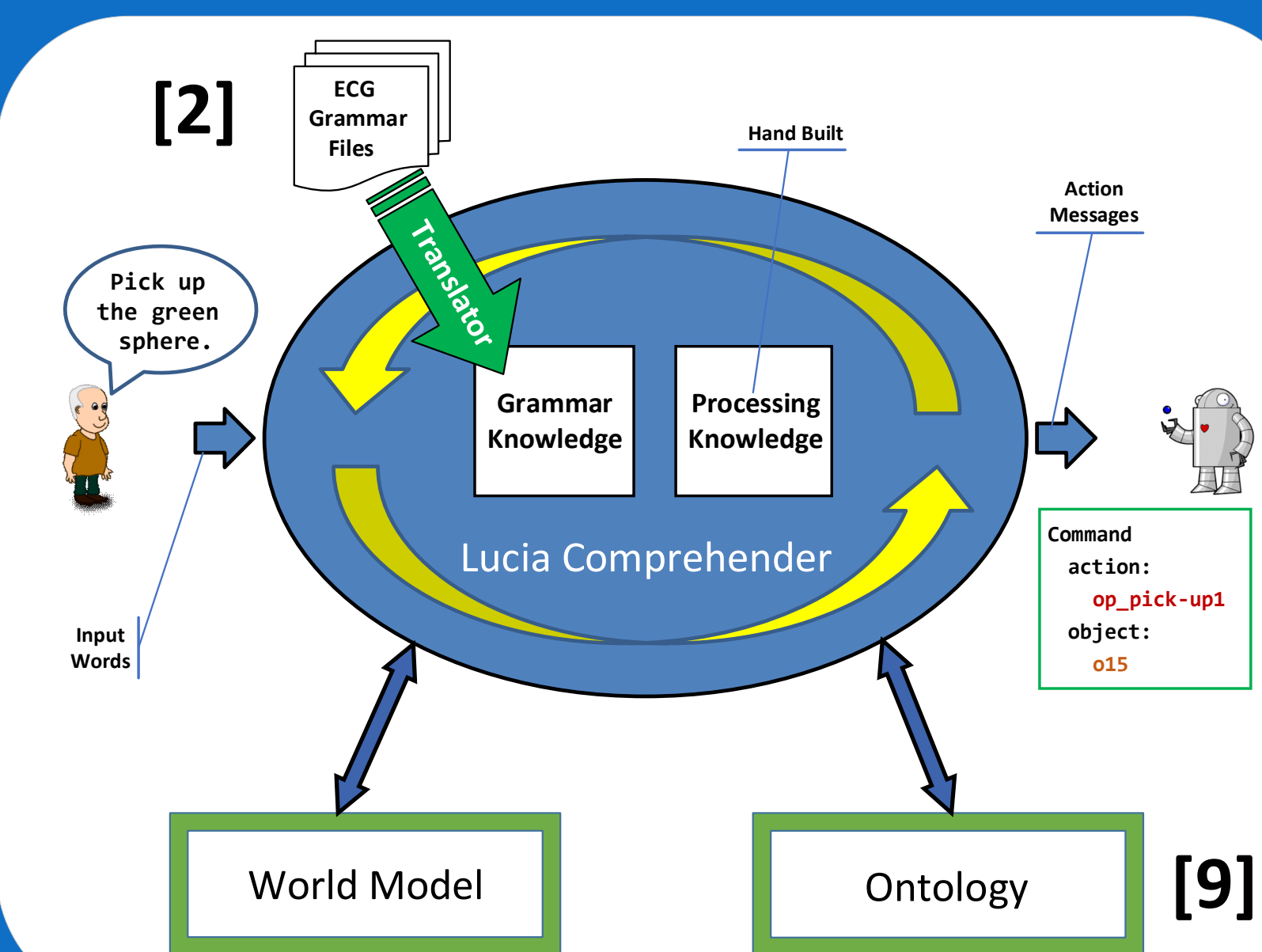
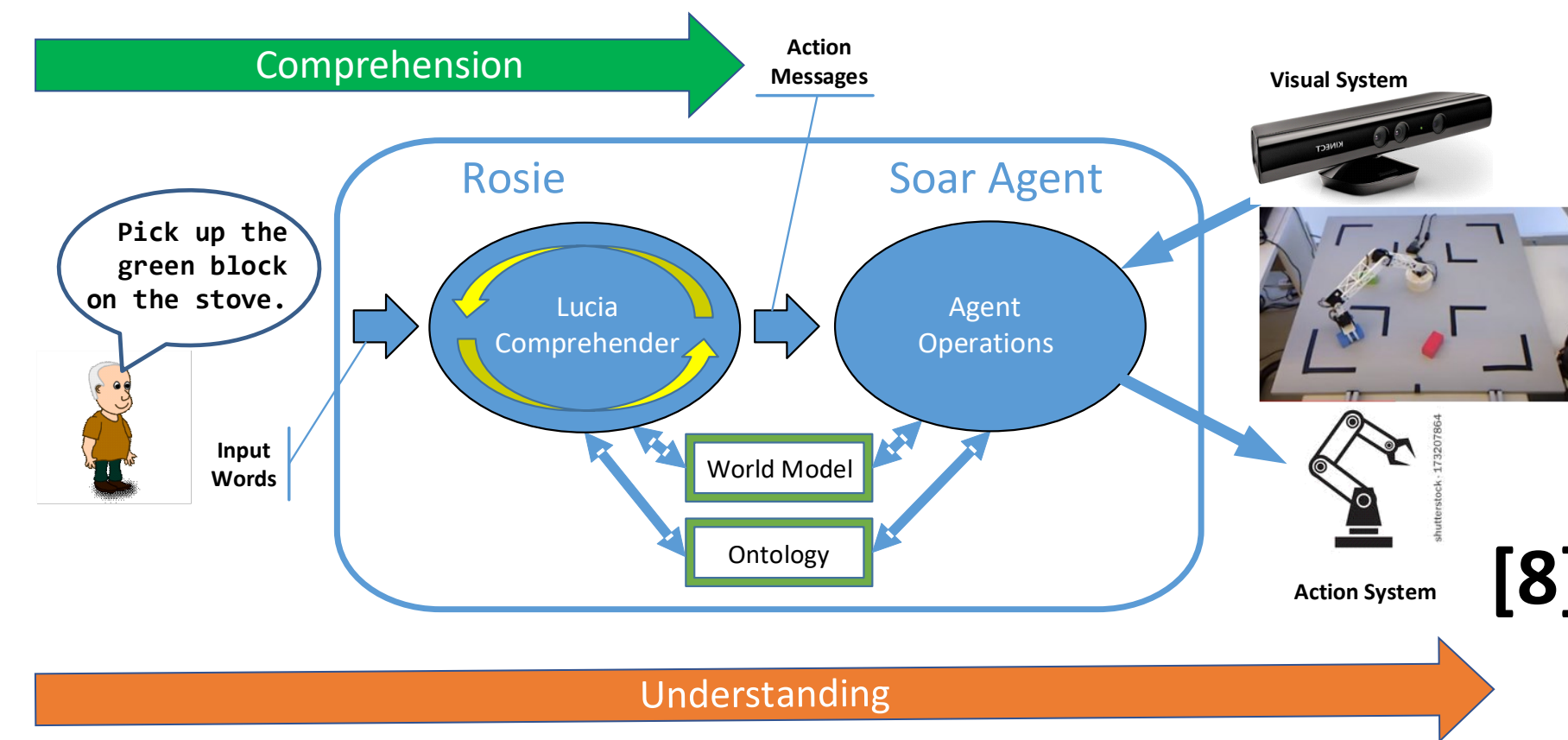


Lucia



P1 Actionable meaning [10]



H1 Humans communicate



Human/Brain Data

1. Language is used to *communicate meaning*
2. *Immediate interpretation*
3. *Variation in reading times*
4. *EEG times correlate with surprisal*
5. *EEG shows overlapped processing*
6. *Prediction*
7. *Spatial distribution of brain activation*

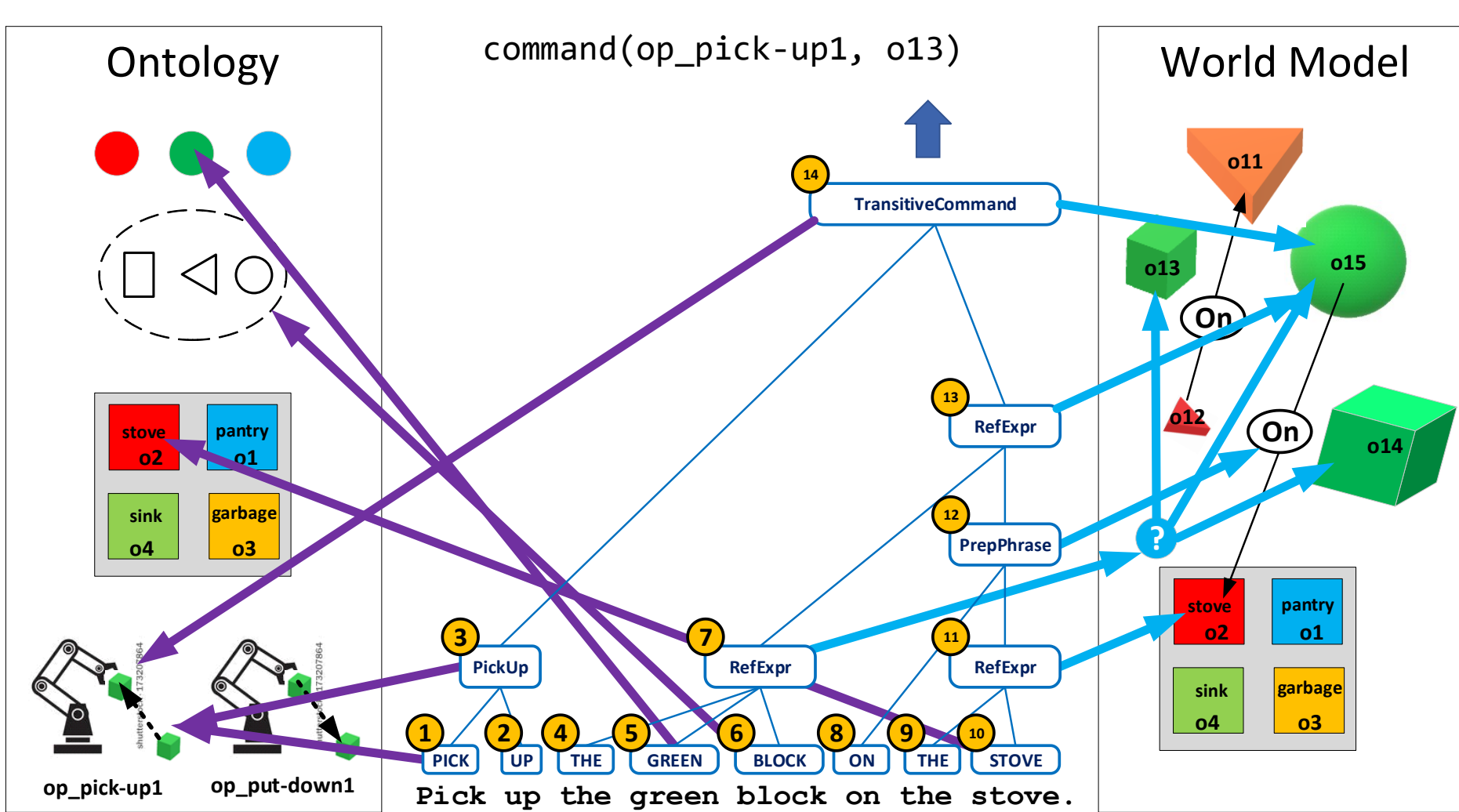
Principles & Predictions

1. *End-to-end, actionable comprehension*
2. *Form->Meaning mapping in small units called constructions*
3. *Incremental, chunk-and-pass* [5] *processing*
4. *Immediate interpretation*
5. *Semi-repetitive construction cycles*
6. *Prediction (in process)*
7. *Sequence of memory accesses*

Questions for a Neural Implementation

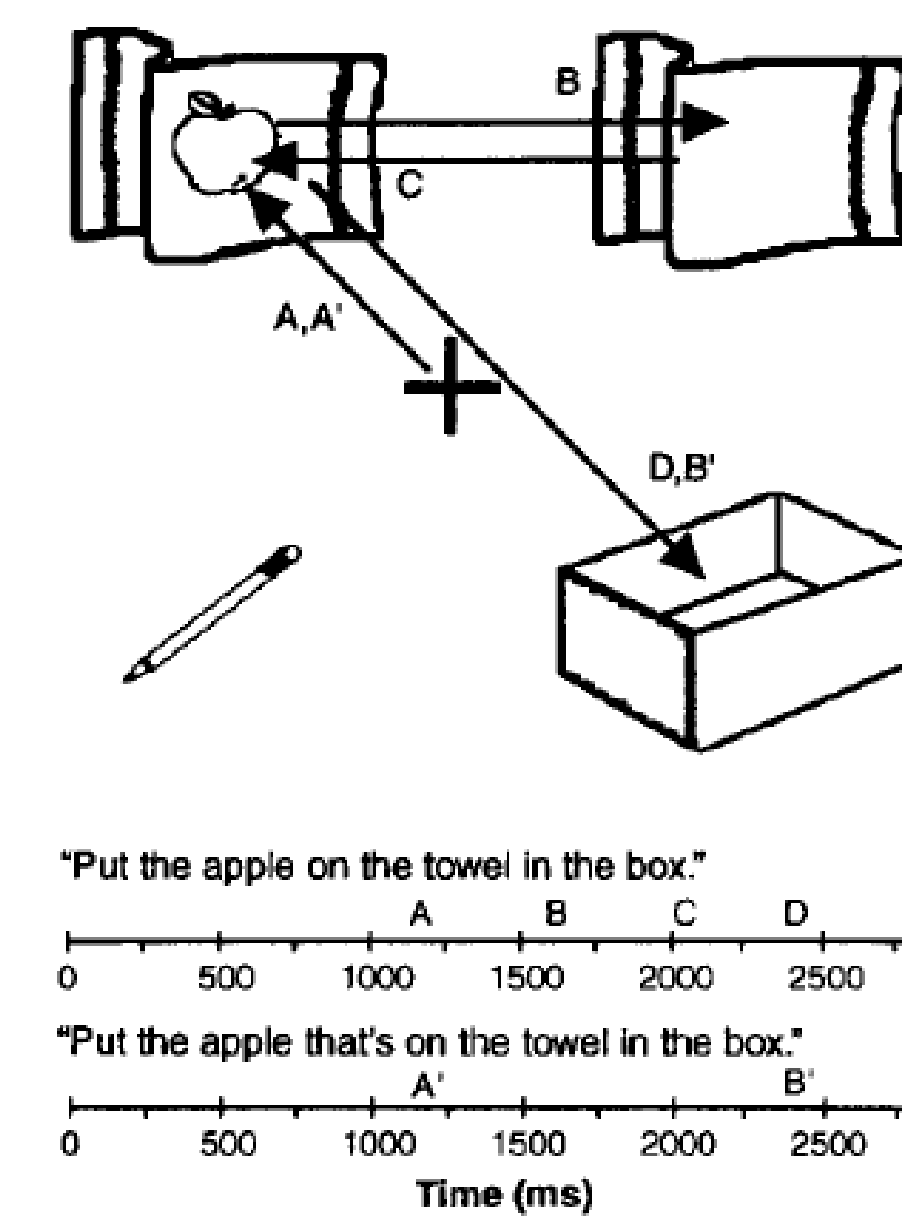
1. How is linguistic knowledge represented?
2. How are word senses retrieved?
3. How is the dynamic comprehension state represented?
4. How are composite constructions retrieved?
5. How is the integration process performed?
6. How are the ontology and world model represented?
7. How is grounding performed?

P2 Form->Meaning



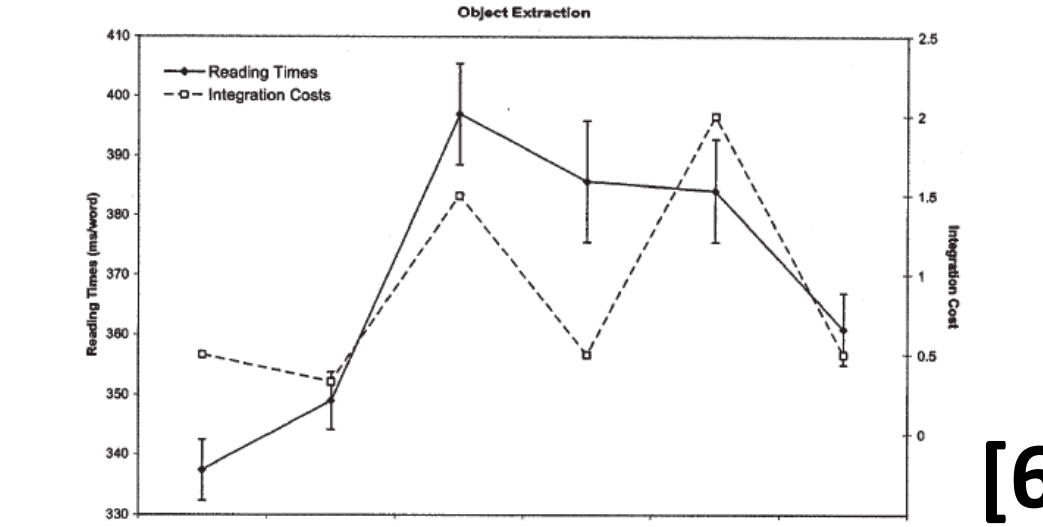
P4 Immediate interpretation [1][5]

H2 Immediate interpretation



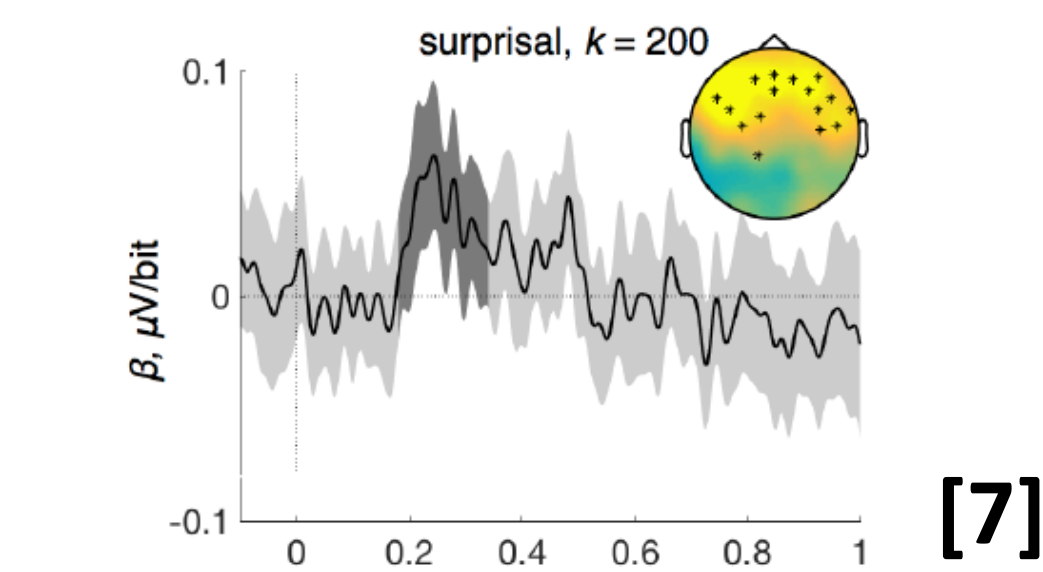
[12]

H3 Reading time variation



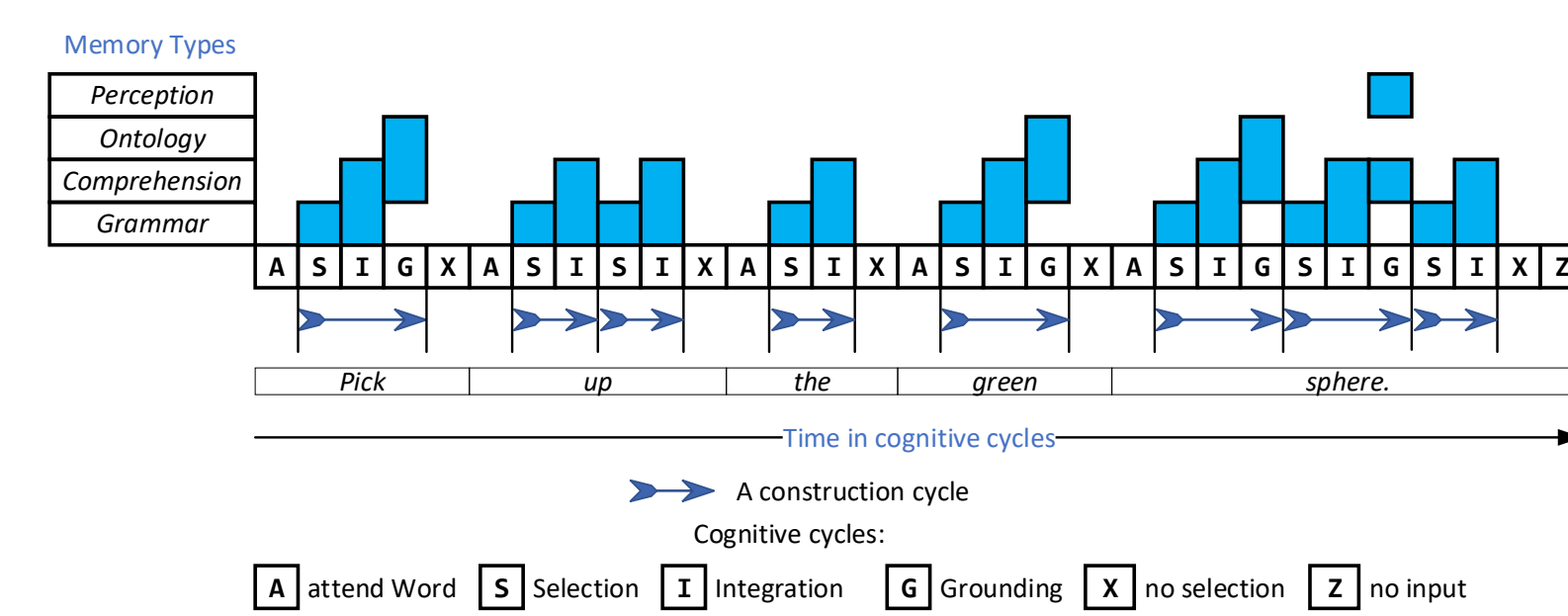
[6]

H4 Surprisal [4]



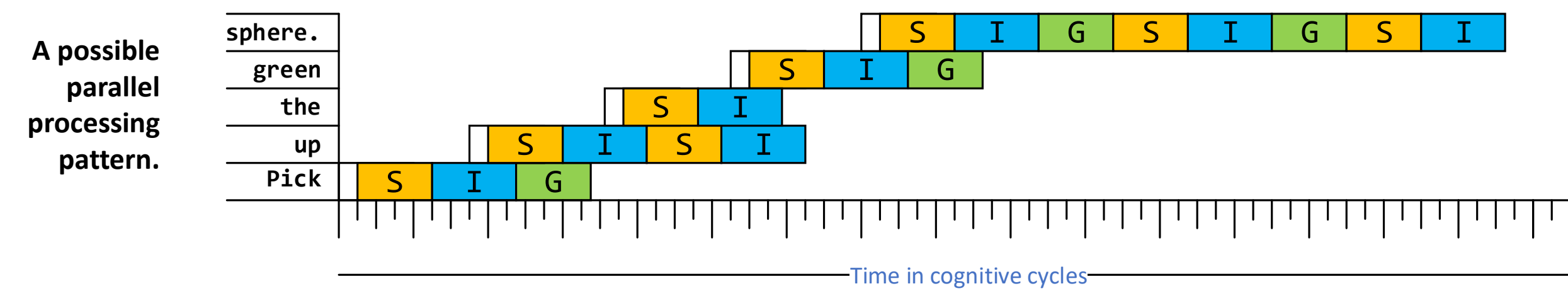
[7]

P5 Construction cycles

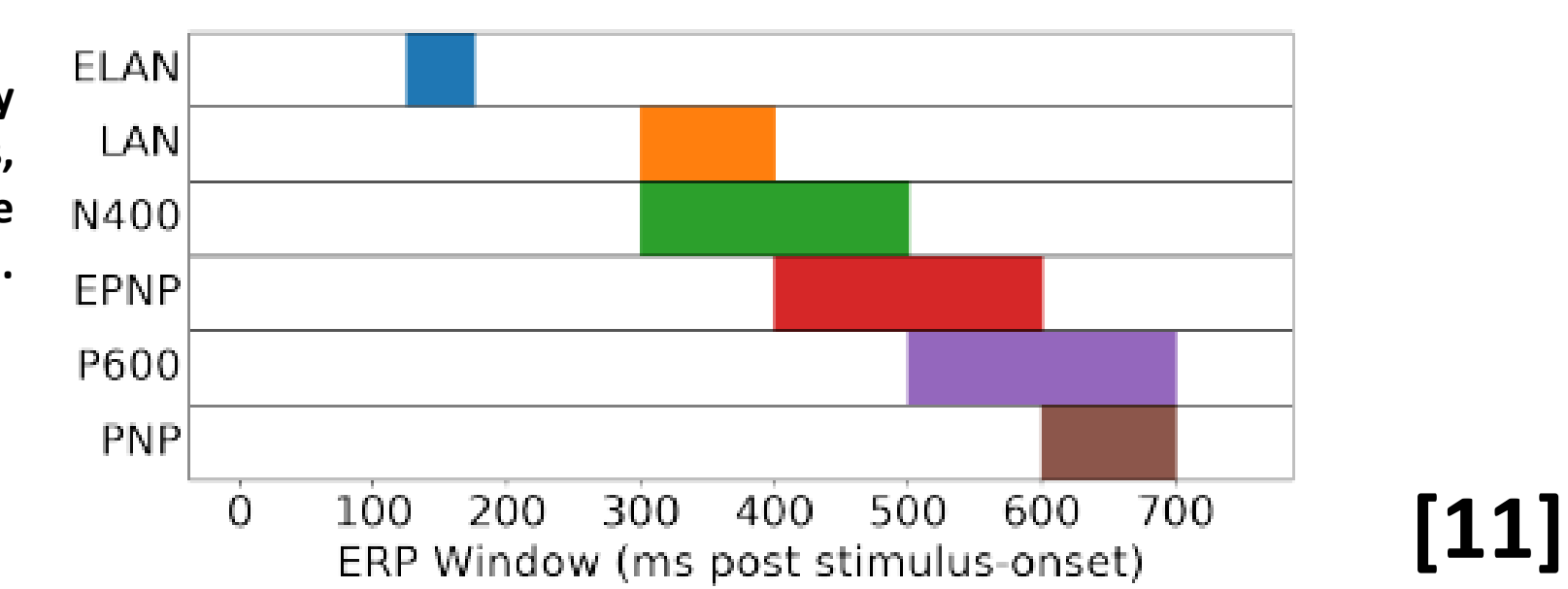


Each cycle completes before the next starts.

Words come every 250-400 ms, before the previous is done.

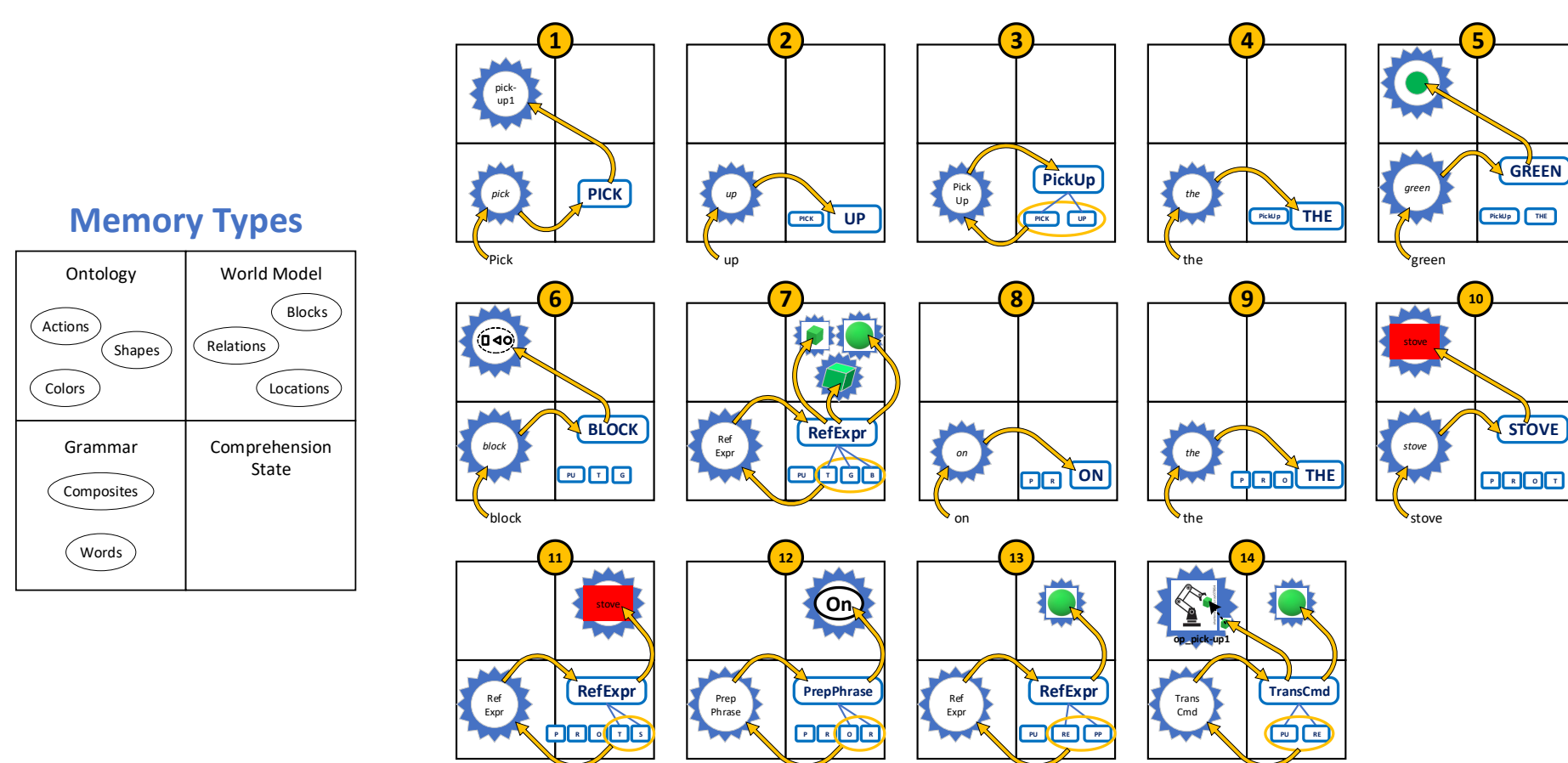


H5 Overlapped processing

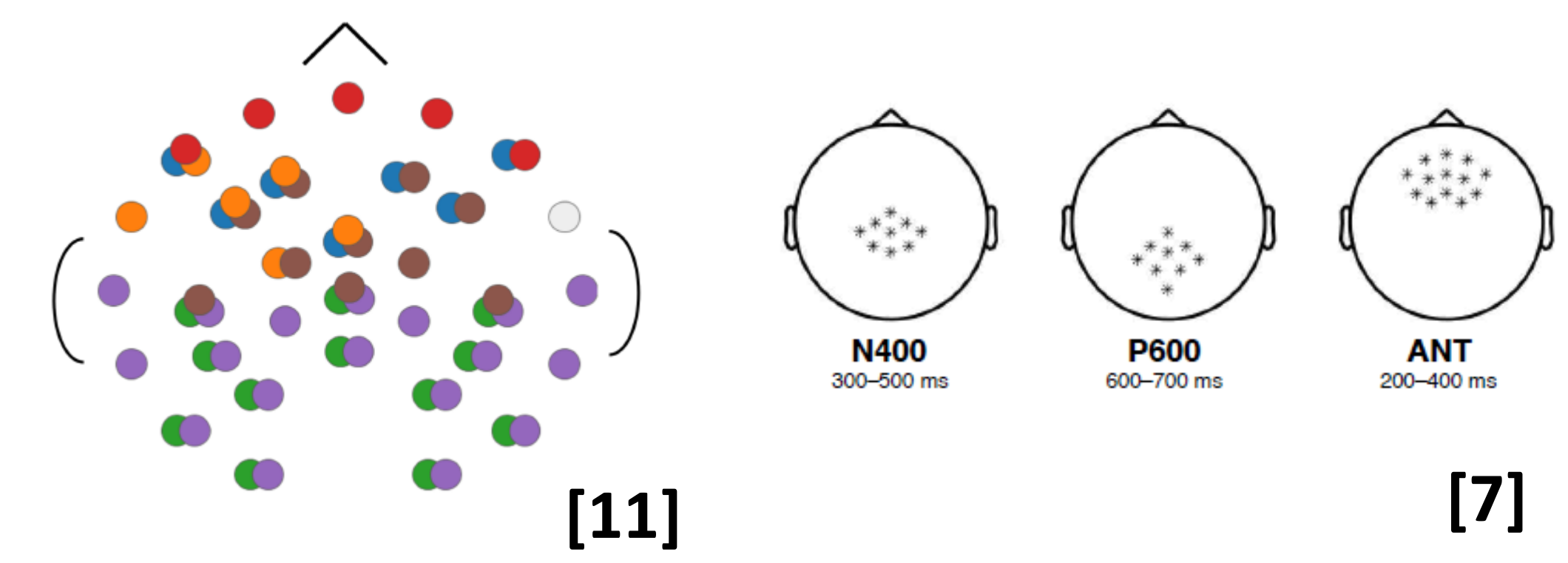


[11]

P7 Memory access sequence



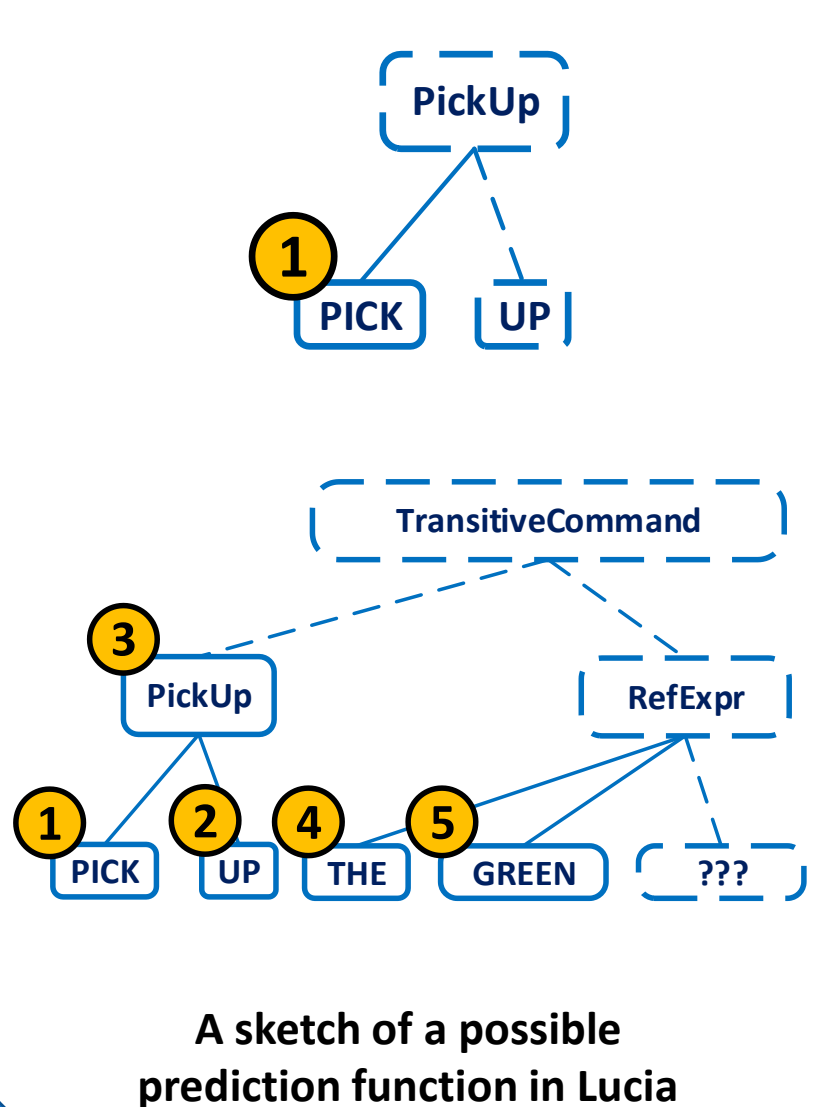
H7 Spatial distribution



[11]

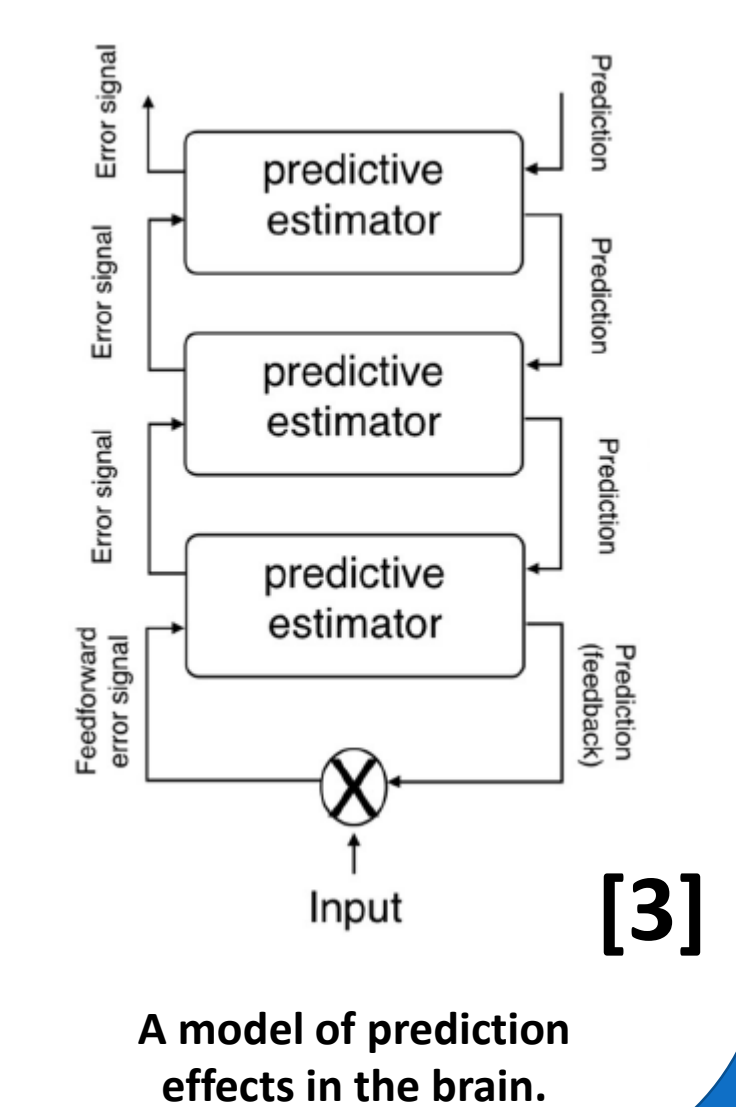
[7]

P6 Prediction



A sketch of a possible prediction function in Lucia

H6 Prediction



A model of prediction effects in the brain.

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