

PHILOSOPHY, SOFTWARE

THE CONSCIOUSNESS CHECKLIST

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[Gravestein](#) discusses the 70 page arXiv paper [“Consciousness in Artificial Intelligence: Insights from the Science of Consciousness”](#) and 14 indicator properties from 6 areas

Recurrent processing theory

RPT-1: Input modules using algorithmic recurrence

RPT-2: Input modules generating organised, integrated perceptual representations

Global workspace theory

GWT-1: Multiple specialised systems capable of operating in parallel (modules)

GWT-2: Limited capacity workspace, entailing a bottleneck in information flow and a selective attention mechanism

GWT-3: Global broadcast: availability of information in the workspace to all modules

GWT-4: State-dependent attention, giving rise to the capacity to use the workspace to query modules in succession to perform complex tasks

Computational higher-order theories

HOT-1: Generative, top-down or noisy perception modules

HOT-2: Metacognitive monitoring distinguishing reliable perceptual representations from noise

HOT-3: Agency guided by a general belief-formation and action selection system, and a strong disposition to update beliefs in accordance with the outputs of metacognitive monitoring

HOT-4: Sparse and smooth coding generating a “quality space”

Attention schema theory

AST-1: A predictive model representing and enabling control over the current state of attention

Predictive processing

PP-1: Input modules using predictive coding

Agency and embodiment

AE-1: Agency: Learning from feedback and selecting outputs so as to pursue goals, especially where this involves flexible responsiveness to competing goals

AE-2: Embodiment: Modeling output-input contingencies, including some systematic effects, and using this model in perception or control

TBC

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