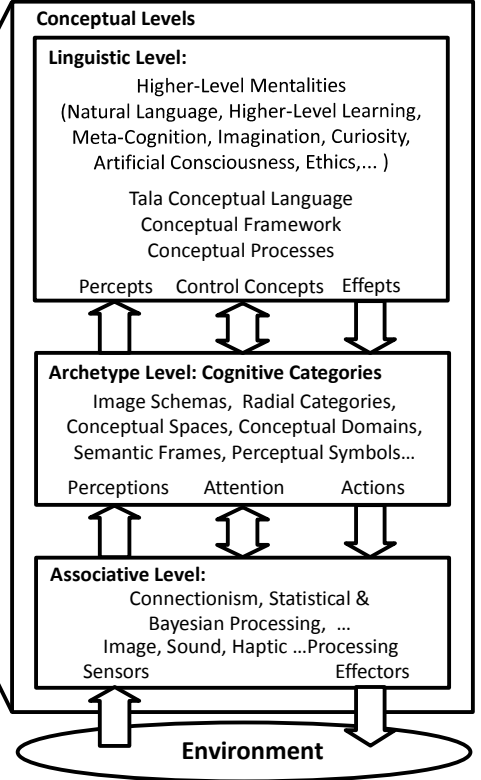


Jackson – *The Intelligence Level and TalaMind* Advances in Cognitive Systems 2018



TalaMind Architecture Tala Agent (Jackson, 2014 et seq.)



*The Knowledge Level (Newell, 1982, 1990)

Agent

An agent is composed of a set of actions, a set of goals and a body. The medium is knowledge.

There are no laws of composition for these components. There is a "complete absence of significant structure".

Principle of Rationality: The agent processes its knowledge to determine actions to take, to attain its goals. Knowledge = "whatever can be ascribed to an agent such that its behavior can be computed according to the principle of rationality".

An agent may have infinite knowledge. Real systems can only "approximate" the knowledge level.

"Intelligent systems are not to be described exclusively in terms of the knowledge level." "Representations exist at the symbol level", not at the knowledge level. The knowledge level is "immediately above the symbol level."

"Perfect" intelligence is using all an agent's knowledge to achieve goals. Thermostats have perfect intelligence, humans have imperfect intelligence. (Newell, 1990)

Newell's (1990) discussion of "bands of action" was quite different from the theoretical idea of a potentially infinite knowledge level. The bands of action were based on real processing in finite human brains.

The Knowledge Level*

(Newell, 1982)

Potentially Infinite,
Unchangeable, Unreal,
Unnecessary

The Intelligence Level

(Jackson, 2018)

Human-Level Artificial Intelligence
Open to R&D, Finite, Real Systems

subset

Computer System Levels

(Newell, 1982)

Symbolic Program Level

(Newell & Simon, 1976)

Computer Programs
Universal Computation
Digital Computers

subset

Register-Transfer Level

subset

Logic Level

subset

Circuit Level

subset

Electronic Device Level