UNLOCKING
CONSCIOUSNESS

BRIAN MIND FORUM

Appendix 012

Engrams, Memes, Neurules
Growth of Neural and Verbal Processors and algorithms in the Brain.
(Subroutines)

The series of ideas about consciousness developed by Daniel Dennett has similarities to the Turing concept of a *'universal machine'*. Dennett uses different language in '*Consciousness Explained*' and subsequent publications. He argues that our illusions are not what they seem, because they are built of still more illusions which give rise to the concept that consciousness is the product of a '*virtual machine*' running in the brain'. Substitute Turing's hierarchies of 'algorithms' for Dennett's hierarchies of 'illusions' both contributing to the operation of an 'abstract processor' and the two concepts are indistinguishable. The use of the word 'machine' to describe an abstract concept is probably coincidence but it has served in both cases to put everyone off the trail.

Over the last fifty years a number of neuroscientists and others have proposed the concept of abstract processors developing in the brain, sometimes using the analogy of the subroutines designed by computer programs; but not referring to others, or building on similar ideas of other theorists and commentators, thus they have come to their theories from many different perspectives.

In addition, language operates in a similar fashion. We build up some phrases, sentences, paragraphs or even dissertations to describe some function or concept and then give it a label. This label then takes on the 'meaning' of the whole mass of words. We can then group these labels together and give them a label into unlimited hierarchies of meaning.
Examples of this 'indexing' are the indispensable development of soundbites, slang and jargon. In effect this is an evolutionary way of simplifying the most complex concepts, and a key tool of 'thinking'.
Whether one agrees or disagrees with the policies the soundbite "tough on crime and tough on the causes of crime" summed up in ten words the complex polices of two government departments in a concise statement that was clearly understandable to the whole public.

Donald Hebb referred to but also suggested and	Cell assemblies, Engrams Phase sequences Hierarchies of assemblies Pathways Gradients
Herb Simon proposed as part of the	Hierarchies of assemblies Architecture of complexity
Other proposals included and	Pathways Gradients
Arthur Koestler suggested	Holons
Daniel Bor quotes the term	Chunking, but using it as both a noun and a verb
John Duncan proposes	Neural enclosures
Matt Brookes, Krish Singh (rhythms) Nottingham (Physics World 39 May 2013) refer to	Neural Assemblies
Arie de Geus and Charles Ross have coined the term to describe	*Neu*ral mod*ules*, or *neurules* Mental subroutines, or bioprograms
Richard Dawkins has promoted	Memes for larger algorithms
John Duncan prefers	Cognitive enclosures
Terence Deacon has developed	Symbols as part of a series of concepts specifically associated with algorithms for words
Guy Claxton has opted for and	Minitheories Canals
Rupert Sheldrake has developed	Morphic Resonance
More recently, a research team at the University of California at San Diego has demonstrated that Brain Waves can combine large groups of neurons into This assists in riding peaks and troughs of electrical waves as they traverse the brain to form Or to form	 Functional Assemblies Spacial Maps Cooperative Groups

Susan Greenfield in her 2016 book
'A day in the life of a Brain' suggests   Neural Assemblies

Obita Dicta. Dennett also argues that conscious experience is an *ex post facto* activity generated as a result of competing multiple patterns of activity propagated in the brain. This comfortably answers the self determination argument, but does not address the problem of the initiation of neural activity that leads to creativity, problem solving, projection and thinking. But it usefully points up the difference.

2018 // Book Final // Appendices NEW // 012 Engrams, Memes, Neurules