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THREADS, OBJECTS AND THE TAPESTRY OF THE MIND

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The brain is essentially a multiprocessor computer employing large-scale multithreading. Extending previous work, (Arun, C.P. European Psychiatry 2009 and 2010) we examine whether process threads and objects can simulate diverse mental illnesses. We used Java 6, an object oriented programming language to simulate thread and object generation in the mind. Process threads were programmed to allow control of

- (1) the 'clock speed' of the brain's internal clock
- (2) duration of thread life and efficiency of 'garbage collection'
- (3) integrity of internal objects and
- (4) assignment of salience.

A few examples of the results are mentioned here. A fast clock speed led to the rapid generation of threads causing a rapid switch from one task/topic, manifesting among others, as a shortened attention span and flight of ideas (mania). Slow thread formation led to psychomotor agitation as well as a slow rate of speech output (depression). Failure to reign in ('garbage collect') threads caused them to persist and led to many short and recurrent thoughts/actions (as in anxiety). Disordered weighting of threads and/or damage to objects led to the assignment of salience inappropriately (the hallmark of the psychoses). The failure to generate enough threads ('loss of multithreading') led to problems with complex tasks (like ability to recognise facial cues) and recurrent thread generation without variety, led to repetitive behaviour, hyperstimulation, etc (autism spectrum disorders). Studying Threads and Objects as integral parts of the computational Tapestry of the Mind provides rich insights into mental functions in health as well as illness.