

Consider This..... A Pointer to a recent finding in the Neuroscience of the Social

Key points from a very short presentation at the euCognition Network meeting in January 2008.

[1] A recent meme, with a demonstrable birth and readily observable growth was presented. This is the slightly silly Mr Splashy Pants which resulted from a Greenpeace initiative to draw attention to the hunting of humpback whales. This topic was presented only by way of introduction.

[2] The specific social characteristics of the primate branch of life were highlighted, in which complex social organization is maintained dynamically and the position of an individual within that society is a function of its behavior.

[3] The well known rapid development within the human branch gave rise to language and culture within a relatively short period of time. Thus much of that which differentiates us from our nearest animal relatives must perforce be social, and distributed.

[4] The history of modern psychology is one of a theory of the individual. Despite the continual presence of a theory of our social selves, the basic world view of psychology has revolved around the individual.

[5] Neuroscience has recently been forced to confront the social aspect to our constitution. This is perhaps most obvious in the discovery of mirror systems in monkeys and apes. But it is also true of the picture emerging of the role of the Anterior Cingulate Cortex.

[6] In reviewing the many functions of the ACC, we encounter a yawning cleft between the well-defined terms of the neuroscience, and the ill-defined, ill-understood concepts of folk psychology in which these are cached out. A very brief summary was provided which characterized the ACC as having a mediating role between the potentially conflicting demands of the biologically instantiated individual and the social self [1,2]

[7] The intriguing spindle cells (or von Economo neurons) found in the ACC of the apes and humans were presented. See [3] for an overview. It was suggested that these would merit much further study, as they *may* be implicated in the circuitry that gives rise to much of our social characteristics, and hence, much of what makes us human.

[8] The very surprising finding of spindle cells in the ACC of the humpback whale was then presented [4]. This is a remarkable case of convergent evolution. Quite what the problem or challenge was that gave rise to the independent evolution of spindle cells is unknown. But it is suggested that it might just be important for us to look more closely here.

References

[1] Amodio, D. M., & Frith, C. D. (2006). Meeting of minds: the medial frontal cortex and social cognition. *Nature Reviews Neuroscience*, 7(4), 268–77.

[2] Frith, C. D. (2007). The social brain. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 362(1480), 671-678.

[3] Allman, J.M., Hakeem, A., and Watson, K. (2002) Two phylogenetic specializations in the human brain. *The Neuroscientist* 8(4):335-46.

[4] Hof, P. R., & Van der Gucht, E. (2007). Structure of the cerebral cortex of the humpback whale, *Megaptera novaeangliae* (Cetacea, Mysticeti, Balaenopteridae). *Anatomical record* (Hoboken, N.J. : 2007), 290(1), 1-31.

