

In this talk, Prof. Ramachandran gives 3 intriguing examples about how manipulations to neuron wiring or brain structure can affect normal functioning, and impairment of one functioning (damage to a particular brain region) may not influence all other functioning (other brain regions), e.g. a person unable to distinguish between delusion and reality or schizophrenic may have all other functioning intact. First, he talks about Capgras syndrome, e.g., a boy unable to identify his mother in front of him. As per the Freudian view of the Oedipus complex, a new born child has sexual attraction towards the opposite sex parent. As he/she grew, the sexual desire is suppressed and the brain associates the visual/auditory input of how the mother appears/sounds with emotions of motherhood. In this syndrome, this cross-mapping is destroyed, hence when the mother appears in front (assuming the emotions associated with visual cross-mapping is affected), the person could visually recognize the mother but couldn't associate the emotions of motherhood, hence couldn't affirm completely of her being his mother, assuming the auditory mapping is not affected, he can still recognize her with a voice such as on phone call. Freudian view explains the phenomenon for paternal/maternal relations only but the syndrome appears for a large class of objects/people, mothers, animals, or other persons as well hinting it as a more general function of a brain part. Secondly, he talks about Phantom Limb, e.g., a person limb gets paralyzed and develops inevitable pain leaving the patient with the only option of amputating that organ, the patient lives with this pain and paralyzed limb for several months before the need for amputation was confirmed, during which the brain learns the fact "pain is happening in a paralyzed limb", now the organ is amputated, and the person stills feels the pain/presence of the amputated organ, and the learned fact "pain is happening in a paralyzed limb" is not unlearned yet. Now, the patient is provided with a mirror so that he sees the reflection of the other limb and starts feeling the presence of the amputated organ. The actions of the reflected limb make his brain feel that the amputated organ is healed and working. Interestingly, practicing it for sometime relieved his pain. The phantom organ can be any internal/external organ. Thirdly, the author talks about synesthesia, e.g., a group of certain people when shown images of numbers associate specific colors with it. This happens because the number and the color handling part of the brain are adjacent and cross wired in such people. More interestingly, it is 8 times more common in creative people (artists, novelists, etc.), as they're expert in metaphorically connecting all different subjective and objective experiences indicating an important fact of the presence of numerous cross wirings between different regions of the brain in these people. A popular fact is that we're born with all brain regions connected to all others and as we grew these are trimmed down or encoded to actual functions like vision, auditory, touch and other functions. The author hinted at brain parts- fusiform gyrus and angular gyrus as having a significant role in all the above phenomenon. Above are significant hints on the neuroplastic capability of the brain, i.e. the ability to rewire/dewire neural connections, according to what the brain experiences continuously.