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MIRROR NEURONS AND ANALOG REFLEXES WITH THE "SIMILIS" PRINCIPLE

Abstract

Mirror neurons are a class of predominantly motor neurons that are **spontaneously** activated both when

-an INDIVIDUAL carries out a finalized action

and when

- the same individual OBSERVES the same (or very similar) finalized action performed by ANOTHER INDIVIDUAL.

The neurons activated by the EXECUTOR of a gesture, of an action, are "lit" also in the brain of the OBSERVATOR(s) of the **same** action.

-Even in the blind, the sound of water poured from a bottle into a glass is enough to activate the same neurons activated in the person who pours the water.

It is - this - a phenomenon of cerebral motor resonance, of real "homology": **the similar produces the similar**.

-The neurons assigned to carry out an action in individual A provoke the similar neuronal response in individual B, AS IF the neurons had the biological need to enter RESONANCE, COHERENCE, COMPARTICIPATION.

In humans, Mirror neurons are activated even when the action is only **mimed**, not necessarily completed.

These are not characteristics of the individual, but of the species.

Mirror neurons are an effective ancient system for communicating with one's fellow human beings in a more performing group mode. Unexpectedly, the Motor System can also manage the Sensory System.

These neurons have allowed the transition from Hominids to *Homo sapiens*, a highly social and gregarious animal, and have shaped civilization.

They have been (and are) effective in

1. understanding emotional states (facial mimic and posture)
2. language development.

To date, Mirror neurons have been identified only in Primates and - above all - in MAN.

The mechanism is made to better understand others, also - and above all - in non-verbal communication and learning by imitation and emulation (*Common coding theory*), allowing to understand actions and to interpret intentions.

"*Mirror Neurons will do for Psychology what DNA did for Biology*" (V.S. Ramachandran - UCLA University, 2000)

Between the 80s and 90s of the 20th century some Italian neuroscientists working at the Institute of Physiology of the University of Parma, Luciano Fadiga, Giuseppe di Pellegrino, Vittorio Gallese, Leonardo Fogassi, coordinated by **Giacomo Rizzolatti** - today considered the greatest Italian neuroscientist - took the first steps of **Ethological Neurophysiology** and began to study the neurons of the Lower Frontal Cortex of macaque deputized to the movements of the hand in the act of grasping food.

Randomly ... it was shown that, while an experimenter was grasping a fruit intended for the macaque, some of the macaque's motor neurons deputized for prehension, "turned on", "reacted" without the monkey having performed any motor act.

-Similar experiments were repeated many times (4 years passed from the first observations to the publication of the discovery), also to dispel the astonishment and perplexity of the experimenters in front of this "strange" phenomenon, never highlighted by others before and... "impossible"... according to the knowledge of the time.

Currently, through

1. Electroencephalogram (EEG)
2. Functional Magnetic Resonance Imaging (fMRI)
3. Transcranial Magnetic Stimulation (TMS)
4. Positron Emission Tomography (PET)
5. Needles inserted deep into the brain tissue,

the mirror areas have been located in:

- A. LOWER LOBE - ROSTRAL PORTION

- B. PRECENTRAL GYRUS - LOWER SECTOR
- C. FRONTAL GYRUS (Left) - BELOW AND FRONT AREA
- D. UPPER TEMPORAL SULCUS (Left)
- E. DORSAL PREMOTOR CORTEX (Left)
- F. SOMATO-SENSORY CORTEX
- G. EMOTIONAL AREAS.

Rather than talking about Mirror Neurons it is more correct, from a Neurophysiological point of view, to talk about **Mirror System**.

The Mirror System is - therefore - a global mechanism for understanding the other as yourself, how the other is similar to you, how you are similar to the other.

-The Mirror System is very important for understanding by an organic point of view:

1. EMPATHY, the ability to immediately place oneself in another person's state of mind or situation
2. CONDITIONING (...*Hey, teacher... leave the kids alone!*)
3. MENTAL MANIPULATION (*Brainwashing, Brain-squeezing*)
4. IN THE ART OF TEACHING AND LEARNING
5. ADVERTISING
6. SOCIAL EVENTS (cinema, theatre, dance, sporting events, congresses, etc.).

↓

...

1000 OTHERS. In all relationships (PAY ATTENTION TO GESTURES, TO WORDS, TO DIS-EMPATHY → ANTI-PATHY)

CORRELATIONS BETWEEN MORPHO-FUNCTIONAL ALTERATIONS OF THE MIRROR SYSTEM AND **AUTISM**... ...characterized by

- Inability to establish normal social relationships.
- Anomalies and delays in linguistic development.
- Ritualistic and repetitive behaviour.

The human brain... as... water can and knows how to establish "coherence", "coherence domains" and "coherence superdomains".

The Mirror System presents interesting analogies and parallels with the homeopathic Principle of "similis".

-The "similis" Principle consists in the administration to the patient of the substance(s) suitably diluted and dynamized to control specific symptoms, similar or equal symptoms (*simillimum*) experienced by a healthy individual after taking the **same** substance.

SIMILIA SIMILIBUS CURA(E)NTUR «Treat like with like»

SASHRUTA – Indian doctor 900 b.C. ≈ «*Samah samam shamayati*» (Like cures like)

HIPPOCRATES

BASIL VALENTINE

PARACELSUS – *Opus paragranum*, 1529 « *No disease can be cured by contrast, but only with what is like it*»

C.F.S. HAHNEMANN – *Organon*, 1810.

AN EXAMPLE...

Bee sting (*Apis mellifica* L.) →

APITOXIN 0.1-0.2 mg - ≈ 10 ACTIVE PRINCIPLES ["similar" to the venom of some scorpions and snakes and to nettle (*Urtica urens* L.) toxin] →

PAIN, LOCAL REDNESS, LOCAL EDEMA, ITCHING + POSSIBLE COMPLICATIONS

dynamized *low dose* APIS

It fights not only the symptoms of bee stings (*simillimum*) but **also** those induced by different causes that manifest themselves in a similar way, such as those caused by the other insects' venom, burns, allergens...

Therefore, dynamized *low dose* Apis is also indicated in the therapies of tonsillar angina, burns, allergies, joint inflammations, and in all acute inflammations in general.

Vyvanse, a drug officially marketed in 8 countries, is based on LISDEXAMPHETAMINE, and is indicated in ADHD (Attention Deficit Hyperactivity Disorder).

For the control of: Behaviour Disorders
 Attention deficit
 Hyperactivity.

Amphetamine at *low pharmacological dosages* cures the disorders caused by Amphetamine (more than 50 mg) - EFFECT INVERSION -