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Coherence in psycho-physiology

Diagnosis and Training | Frank van den Bovenkamp
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In a systemic context, the human body is described as a so called "open dynamical system" (ODS). The sum total of its functions and interactions with its environment is critical for its very existence. This system can never be "shut down".

The complete nervous system (Central nervous System [CNS] and Autonomous nervous System [ANS]) could be seen as a controlling faculty of the open dynamical system of the human body. Specifically through the CNS and ANS, the body's total functioning etc. takes the form of individual experience.

From a personal perspective, if the body's functions and interactions with its environment, in all their apparent complexity, are in a state of optimal balance, one could speak of a state of inner peace, equilibrium and self-congruency.

Observed at the level of the CNS resp. ANS this is referred to as "coherence". Provided that the type of measurements and analysis are well defined, "Coherence" is not necessarily a complex condition.

With respect to measuring coherence, nature is exceptionally forthcoming by producing measurable electrical spectra in the heart and brain, in other words, exactly at the physiological locations where individual experience is most prominently expressed.

Basic principles of Coherence analysis

Every living entity experiences the challenge, in one form or another, of maintaining its unit existence, while at the same time authentically sharing itself with its environment

The most basic experience is, that going out to find food, automatically means the risk to be eaten yourself. In social interaction the difficulty especially exists in co-ordinating the divergence between one's own self-preservation and unfolding, with all its various needs, and the expectations of our fellow human beings, as individuals as well as a group. In other words:

The central challenge in individual life is to master and fashion the apparent dichotomy between individual needs and desires, and the requirements of our physical and social environment.

Self-preservation vs. promoting of the collective interest appear to be naturally competing operative and experience patterns, representing two associated "Paths out of chaos".

The observation of these dual paths-out-of-chaos are the basis of analyzing physiological coherence. Translated into psycho-physiological terms, the two "paths-out-of-chaos" are described as *synthesis phases*. One synthesis phase is cognitive and individual, the other is coactive (synergetic and empathic). Together they support, facilitate and control the whole spectrum of individual experience.

A more advanced study reveals the dynamic correlations between the physiological (individual and empathic) synthesis phases. Based on theory from the Indian philosopher and social revolutionary P.R. Sarkar, the synthesis phases relate to one another through two mental *projection phases* which together form the actual expression of mind.

Practical diagnosis and training of the dual physiological synthesis phases

The diagnosis and training of the synthesis phases is based on ECG and EEG spectrum coherence.

Definition of the underlying psychology:

- **Synergy resp. empathy** is the result of emotional coherence, leading to a feeling of bliss. This is referred to as the primary synthesis phase.
- **Cognition resp. individuation** is the result of directly or indirect senso-motoric coherence, ultimately resulting in pure self-awareness. This is referred to as the secondary synthesis phase.

The synthesis phases translate into wave coherence (coherent wave synthesis) as follows:

- **Synergy** is created when frequencies maximum merge, and effectively mutually annihilate, and this is optimized by Golden Ratio harmonics and fractality.
- **Cognition** is created when frequencies maximum strengthen one another, but therefore also maximum dissociate, and this is optimized by Octave harmonics and fixed rhythms.

The geometrical ratios optimizing physiological coherence in the CNS / ANS are proven and reproducible by numerical analysis.

Contemporary applications for wave matrix coherence diagnosis and equivalent training are the **CardioGem** and **NeuroGem** (manufacturer TrigunaMedia, Netherlands). The ECG resp. EEG signals are routinely acquired using a high-end electro-physiology amplifier. The ECG signal is taken from the wrists, the EEG is bi-hemispheric, usually from the P3 resp.

P4 neurofeedback points and the earlobes.

The physiological spectra are processed using proprietary wave coherence algorithms. Both applications include a variety of options for further data representation and analysis. Moreover, there are applications in the field of biofeedback.

Primary use of coherence in electrophysiology is as a powerful help for (pre-) diagnosis. Sarkar's theory offers deep insight in the universal structure of individual experience, which can be measured as described in real-time.

In terms of practical psychology the ODS of the heart and brain (as sub-systems of the whole personality), in their quest "out-of-chaos", are assessed with respect to the described synthesis phases.

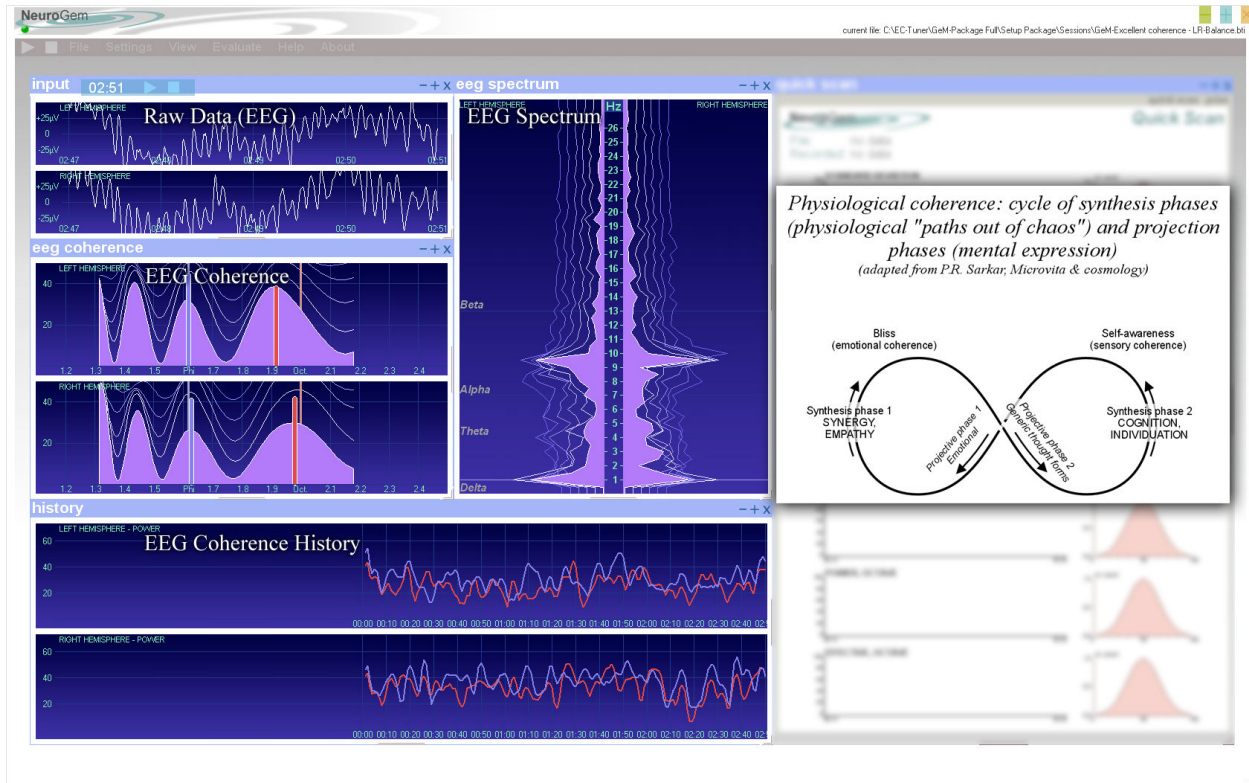
However there is an important difference between heart- and braincoherence:

- **Heartcoherence "empathic"** is receptive (feeling for others, sharing in the sense of taking part)
- **Heartcoherence "cognitive"** is projective (exerting will power, commitment, individual focus)
- **Braincoherence "empathic"** is projective (creating synergy, teamwork, creating a harmonic life style, etc., sharing in a creating sense)
- **Braincoherence "cognitive"** is receptive (analytical power, setting your self apart, taking a "control" position)

These coherent psychological universal or ground states are considered transpersonal or generic. They are therefore maximum powerful and inexhaustible and free from personal affiliations and limitations.

CardioGem and NeuroGem biofeedback can be a powerful help to access these states and their sensitivities in a gentle and natural, technically aided way. It is different from conventional neurofeedback in that it is not based on a reference base of disorders, but on a deep understanding of dynamic synthesis in the ODS of heart and brain.

Entraining the ground states of heart and brain psycho-physiology creates a novel and systematic path to regeneration, flow-experience, co-creation and wholeness.



Screen sample from the NeuroGem, showing prominent coherence at exactly Golden Ratio (blue index bar) and approximate Octave ratio (red index bar). Insert: cycle of physiological coherence.