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On Becoming Surprised an Experiential Cardiophenomenology of Depression

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ON BECOMING **SURPRISED** AN EXPERIENTIAL **CARDIOPHENOMENOLOGY OF** **DEPRESSION**

Mind and Life European Conference on
Personal and Societal Change from the
Contemplative Perspective (Berlin, 10-13 october)

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Steps of my path today

- 1. Why « surprise »?
- 2. Cardio-phenomenology: what does it mean?
- 3. A hypothesis: the more you are depressed, the less you are surprised
- 4. Counter-hypothesis: anxiety, schizophrenia, meditation
- 5. On becoming more « surprisable »: a remedy for depression? A token for meditators?

1. Why « surprise »?

a) A daily immediate nice and sober experience, ideal for crossing 1 and 3 person approaches:

— quite easy to measure (so D. Dennett, 2001, p. 927: « Surprise is a wonderful dependent variable, and should be used more often in experiments; it is easy to measure and is a telling betrayal of the subject's having expected something else ») as startle (cardiac & physiological measures) (Desmidt & co, sub.)

— universally and daily experienced: « waouh! Mais qu'est-ce que c'est ça! » (Depraz, EI, S1 et 6)/C. S. Peirce, *About phenomenology* (1903): « Experience is learning us through surprises » (p. 295)

1. Why « surprise »?

b) An exemplary experience with three main features:

- Surprise is a rupture within a cognitive temporal process
- Surprise is irreducible to an instant-shock but manifests as an articulated process qua dynamics of phases
- Hence: surprise is not as such an emotion but results associated to state-emotions defined by their valence

1. Why « surprise »?

c) A multivectorial model:

— An awaiting phase: implicit anticipation and affective tension

— An aftermath phase: remanence and affective resonance

— A crisis phase : rupture and affective zero point

1. Why « surprise »?

d) An integrative model:

- Phase 1: emotional valence associated (hope/anxiety), inner thoughts and discursive processes
- Phase 3: emotional valence associated (disappointment/satisfaction), perseverative memories
- Phase 2: emotional blank associated with a latence time (silence, interjections or exclamations and intense bodily cardiac reaction)

2. Why Cardiophenomenology?

1

- You feel your heart beat, you will never feel your neurons!

2

- Heartsystem: more integrative than the sole brainsystem

3

- From neuro- to cardiophenomenology: a step forward?

Cardiophenomenology, a step forward

- Neurophenomenology (F. Varela, 1996): mutual generative constraints between the time-embedded subjective experience and the subpersonal neuro-dynamics
- A limitation linked to the time discrepancy between a priori **timeless** philosophical categories (the living present: protention/impression/retention) and the subpersonal **milliseconds** neurodynamics: in fact a third person to third person approach!
- Cardiophenomenology instead (Depraz, Springer, 2013): generative constraints applied to a twofold continuous unitary pre-conscious experience, organic (heartbeating) **and** lived (emotional): reducing towards filling the temporal measurable qualitative gap!
- Appropriate tools: physiological and cardiac measures/elicitation interviews: a third-first person to first-third person approach!
- Goal: synchronizing the timing of the organic and of the lived heart/affective experience of startle/lived surprise into a **common seconds-scaled time**

The Heartsystem: a more integrative system than the Brain system

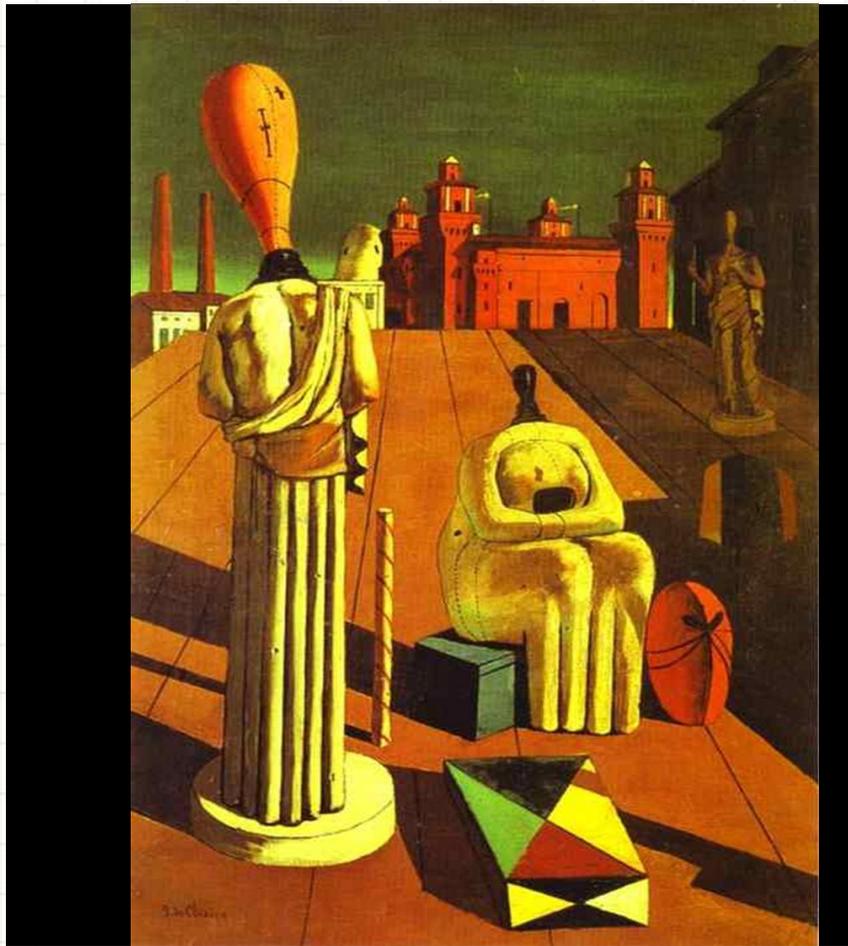
- The cardiac rhythmicity as a clue to « sew » the discrepancy of the explanatory gap generated by the irreducible ontological discontinuity between mind/consciousness **and** brain
- A first step: the introduction of body and context as twofold dimensions, both lived and measurable (Leib/Körper/coping/behavior) (F. Varela, 1989)
- The next present step: the heart-system as a possible « remedy »
 - 1) an embryogenetic argument: selforganisation of the heart during the first weeks of the embryo as spontaneous contractions independently of the brain
 - 2) a linguistic indication (//body): a twofold unity Herz/Gemüt
 - 3) a phenomenological argument: the heart as the matrix of the person as both lived (affection) and organic (muscle), core of the weaving between the first and the third person experience of the subject
- The cardiac rhythmicity as an interactive circular dynamics at three levels at least:
 - (1) The circular organicity of cardiac pulsation
 - (2) The mobility of emotional micro-fluctuations
 - (3) The structural breath-rhythm

Ref: N. Depraz, The Rainbow of emotions: at the crossroads of neurobiology and phenomenology » Cont. Phil. Rev. 2008 41: 237-259 (B. Heiner ed.)// « The heart: the body's body » (2008, Coll de France, B. Andrieu ed., 2009, Tours Medicine School, online conference)

Experiential Cardio-phenomenology

- Initial clue: your heartbeats are directly « self-feelable »:
direct first person sensation of my heart: I feel my pulse, I feel my heart beat in my breast, in my head, my pulse races when I get anxious or after running, I feel my pulse reduce at rest, my inner pulse, the rhythm of my heart always beats faster (I can feel it) when I have drunk too much coffee or fallen in love etc...
- Our current startle/lived surprise experiment both in Tours (depressed patients) and in Paris-Diderot (linguistic students): a « shocking » image is presented, both physiological cardiac reactions are measured **and** lived reactions are elicited through interview which comes back to the lived moment of the very singular and situated appearing of one particularly shocking image!

Giorgio De Chirico, Disquieting Muses, 1918



- Student n°2 (when noticing the headless woman) :
- « J'ai eu un battement de cœur... un peu rapide... à ce moment là parce que je m'attendais vraiment pas à ça... »

Paul Reyberolles, Implosion (1994)



- Student n°6:
« Waouh! » « J'ai sursauté! » « J'ai eu besoin d'un peu de temps pour dire quelque chose! »
- Student n°8: « C'est très choquant! »

3. A core-hypothesis: the more you are depressed, the less you are surprised!

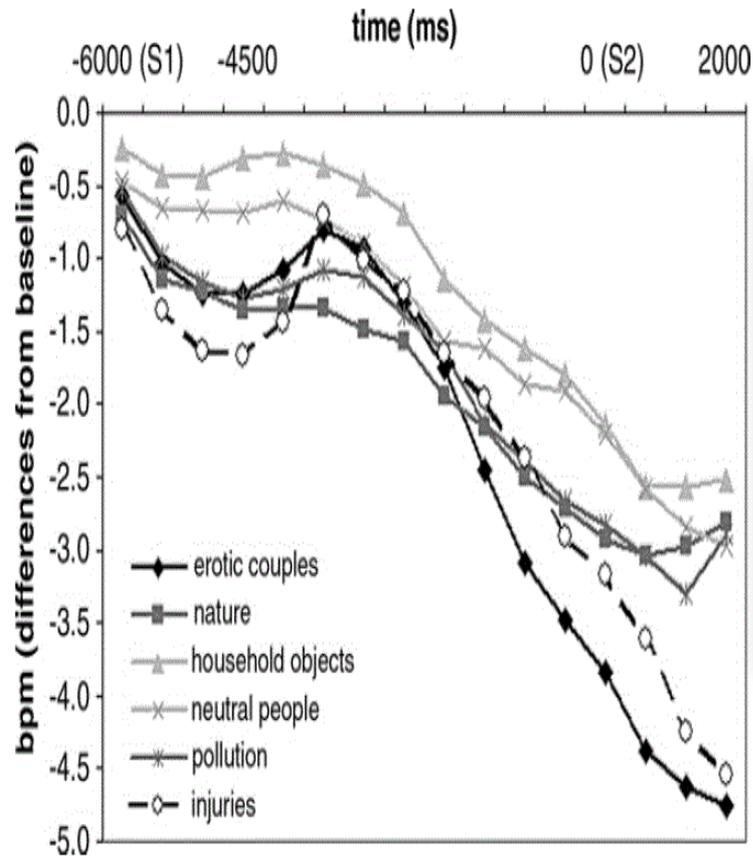
Why depressed patients?

A) There is a hyporeactivity to surprise in depression (Kaviani et al, 2004)

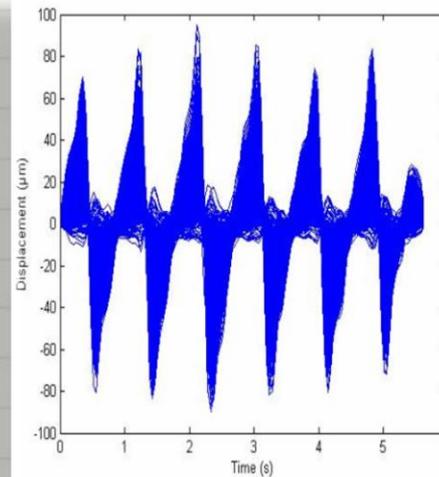
Goal: comparative study with three groups of subjects: standard, depressed and depressed in remission (intermediate variable)

B) The cardio- and cerebrovascular physiology provides a significant marker of the reactivity to surprise and to associated emotional valence

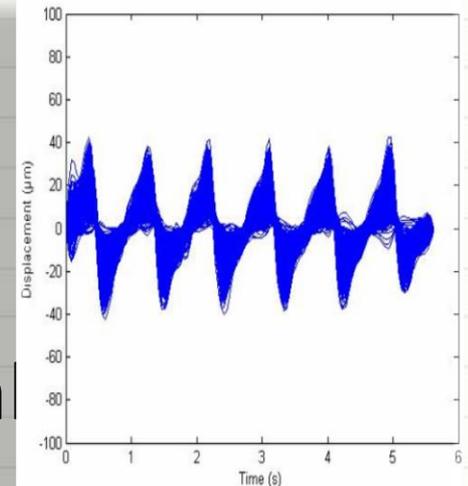
b) Markers of surprise a) Hyporeactivity



Poli & al, 2007



No depression

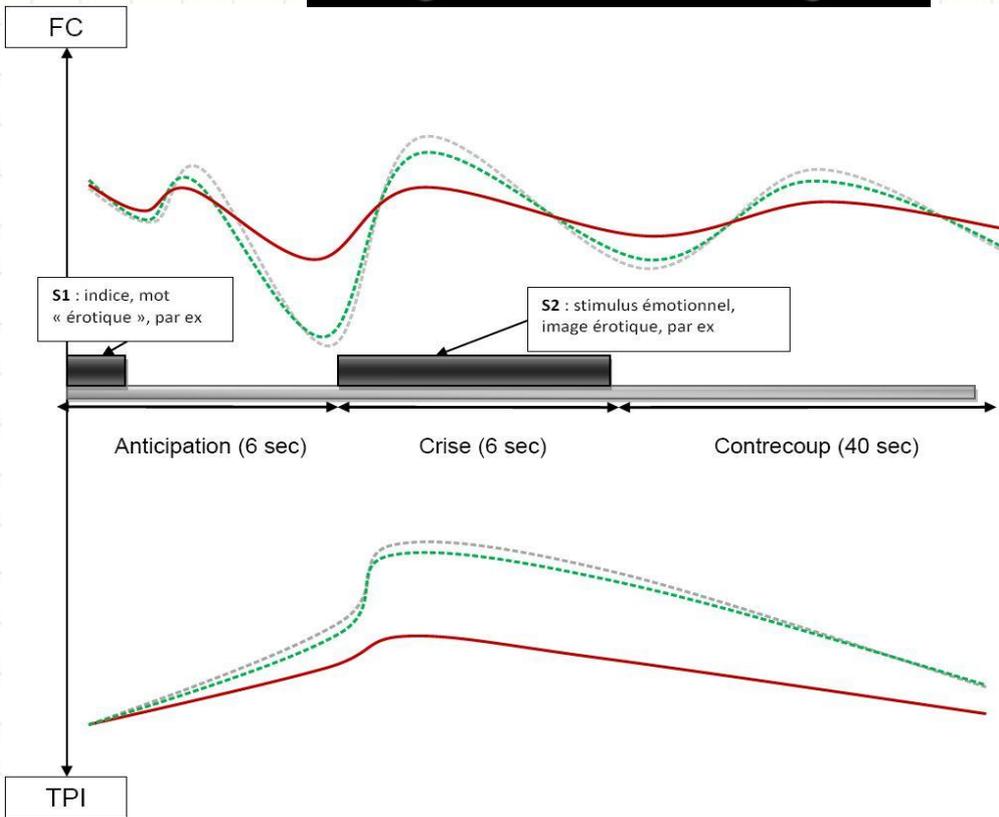
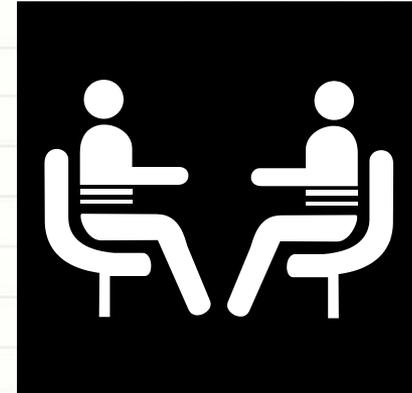
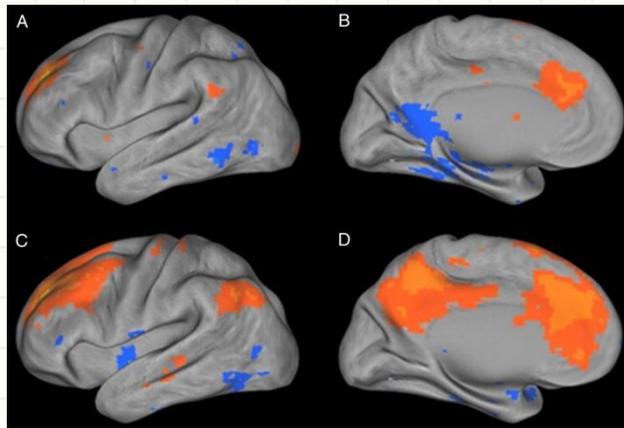


Depression

a

The startle-lived surprise current experiment in Tours-Inserm (T. Desmidt & N. Depraz)

- 1) Cardiac and cerebrovascular hyporeactivity during the three phases of the startle in depression: simultaneous measure of the Cardiac Frequency and of the Cerebral Pulsatility during a S1/S2 protocol (T. Desmidt)



The startle-lived surprise current experiment in Tours-Inserm (N. Depraz & T. Desmidt)

- 2) first person account of the lived bodily, verbal, emotional and cognitive micro-time-embedded experience of surprise by the patient during the three phases (N. Depraz)

An example of the first person micro-temporality at the emergence of a mutilation image for a depressed woman (patient n°3)

**Phase 2a : motor
bodily (startle) and inner
reaction (tripes, pulse)**

**Phase 2b : silence, bodily
language, stammerings,
hesitations**

**Phase 2c : raw emotional
reaction: « c'est horrible de
voir... c'est...ssss »**

« ssss... (mouth-inspiration), comment dire ? Euh (10s silence), fin je je je peux pas imaginer qu'on ait plus de... qu'on puisse plus voir, plus (...) plus plus fin, qu'on ait plus de forme au niveau du visage, quoi, qu'on soit complètement .. euh, fin collé quoi... la douleur euh,... » (l11-13)



The broken temporality in depression: slow down and blurred

- Threefold model : lived body/verbal latence/emotion
- Simultaneous emergence of the three dimensions
- Differences of duration and partial mapping:
 - 1) very short time of the startle
 - 2) short time enough of the silence and bodily language
 - 3) longer time of lived emotion
- Such a three-dimensional emergent lived experience of surprise seems to be nicely clearcut and complex enough.
- Nevertheless the three-emergent experience of surprise for this depressed person shows in reality a great confusion in her account of the three levels with no specific spontaneous temporal sequentiality: what I reconstituted in terms of a threedimensional differential duration with partial mapping is a nice but partly false reconstruction of something that is far more chaotic and mixed up
- Will we speak here of Hyporeactivity? Yes, 1) because of the slow down made of silence and body language, 2) because of the loss of sequentiality and the impression of confusional mixture of the different features of surprise, that blur a more articulated reaction.

4. Counter-hypothesis

- Depression takes quite heterogeneous forms: anxiety for example modulates hyporeactivity into hyperreactivity to surprise. As such, it is a blurring component (Desmidt, 2013)
- Schizophrenia : generates hyporeactivity as well, but emotional anticipation is blurred, so that there is no sedimented experience at all, which may give way to an unceasing surprise (Gallagher, 2008)
- Another state of hyporeactivity to surprise: the meditation state? How to welcome surprise?

5. On becoming more « surprisable »!

Some advantages...

- Being trained to become more surprised does not mean to cultivate an unceaseless schizophrenic surprise. « More » is not quantitative, but qualitative: here « more » equals « better », or again, sedimenting surprise as a un-grounding attitude.
- Being educated to surprise amounts to learning to « letting oneself » surprise. It involves to cultivate a protentional attitude or again an implicit anticipatory inner move as an intrinsic component of the process of « surprisability », what I elsewhere call « self-previousness » (Depraz, *Lucidité du corps*, 2001)
- Such a cultivation strongly echoes as a daylife training the meditational practice of welcoming events without preconceptions and getting open to anything that may happen. A such , it is easily accessible to everybody: each surprising event is an opportunity to practice such an education as a nice tool for self-regulation.

Questions?...

Surprised?

- Amazed? How wonderful...
- Gustave Doré, « Vision du paradis » (1861)



- Puzzled?
- How unseemly and weird...

