**"Space: Paradoxical observations from single case studies**

**on spatial perception"**

Ernst Pöppel

Although "single case studies" have now a bad reputation, major insights

into cognitive processing come from such studies beginning with the

famous cases "tan-tan" by Paul Broca. At first, I will present

observations on the homogeneity of visual space which seems to be

impossible given the inhomogeneity of threshold sensitivity throughout

the visual field. Then: Color perception is unexpectedly modulated by

visual information represented in "blind" regions of the visual field.

Then: Subjects can "see" although they cannot "see" after an injury in

visual cortex ("blindsight"). Then: The representation of the visual

field in visual cortex is pre-wired and rigid, but the oculomotor map is

not. Then: Central fatigue resulting in decrease of sensitivity can be

removed instantaneously by mirror-symmetric stimulations in the visual

field giving insight in the attentional machinery at the midbrain level.

Finally: A new discovery on visual completion provides insight into

structural and functional elements of the human visual system with

psychophysical methods only. Thus, single-case studies should be kept in

the methodological repertoire in spite of the "big data fashion".

**Time – Temporality – Now**

**The three faces of our most basic and enigmatic concept**

Eva Ruhnau

The following temporal notions are common to all cultures when humans interact in social contexts: sequential structure, duration, planning, repetition, synchronization and temporal perspective. The ideas of time are used as instruments of power to build cultures and technologies changing the world. The range extends from early images of time, passing through the development of time measuring instruments, their use in social-industrial synchronization of humans up to the change of the time concept in the modern computerized world.

To avoid the many conceptual confusions in the description of our human experience as well as in the attempts to deal with time in the sciences and philosophy, a clarification of the concept of time is necessary. A classification of the concept of time in a threefold way “Time, Temporality and Now” will be introduced.

“Time” will be the concept as it is formulated in physics. “Temporality” is associated – though not exclusively – with the human mind. The “Now” is not correlated as usually with the present and the human mind, it is considered here as absolute non-temporality in the sense that there exists neither succession nor duration.

With respect to “Time”, several aspects in physics will be outlined, from classical mechanics to quantum mechanics, from special to general relativity and cosmology, from thermodynamics to dissipative systems and from the break-down of “Time” and its disappearance in the emerging field of quantum gravity.

“Temporality” is regarded here as necessarily experiential. Within the elementary building block of “Temporality”, the present, there is no subject-object separation. Such a separation occurs only retrospectively when experience has turned into observation leading then to the comprehension of past-present-future. Concerning “Temporality”, modern brain science may provide interesting clarifications.

To understand the “Now”, we have to turn to philosophy. In describing reality, we face the problem that our language and logic is inherently dualistic. One of the most fundamental generating dichotomies is the complementary pair “permanence and change”. Western philosophy has mostly taken permanence as the dominant concept leading to the substance-view of reality, neglecting a process-view of reality. This reduction of reality entails the subject-object duality and a dualistic description of substantialized time as “Time” (the counting of successive objective factual states) and the “Now” (as unifying power, the representative of the subject in objectified reality).