

# Ordo ab chaos

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# Propositions

## Ordo ab chaos

### Timing cognition in waves

Antonio Criscuolo

- i. *Time* is a fundamental dimension of our lives;
- ii. The transition from *chaos* to *cosmos* is achieved by *temporally organizing* multivariate sensory inputs into a coherent perceptual representation;
- iii. Temporally structuring the sensory environment requires mechanisms of active *sampling* (Ch. 1);
- iv. Most of our reality displays gradients of temporal *regularity*: environmental *rhythms* (Ch. 1);
- v. The capacities to *detect*, *produce*, *predict*, and *synchronize* ('DPS') with rhythms allows us to act and adapt in a dynamically changing environment (Ch. 2-4);
- vi. Neural oscillations *couple* and *predict* environmental oscillations via a  $\beta$ - $\delta$  adaptive code (Ch. 2-3);
- vii. The  $\beta$ - $\delta$  neural code is preserved through *evolution* and shared in macaque monkeys and humans (Ch. 2-3);
- viii. Lesions in the *basal ganglia* and the *cerebellum* causally impact DPS (Ch. 4);
- ix. Bodily physiological rhythms influence brain activity and cognition (Ch. 5);
- x. A Body-Brain Dynamic System characterizes continuous bi-directional interactions between body-brain waves and their influence on cognition (Ch. 5);
- xi. As many other physical phenomena, life fluctuates in waves.