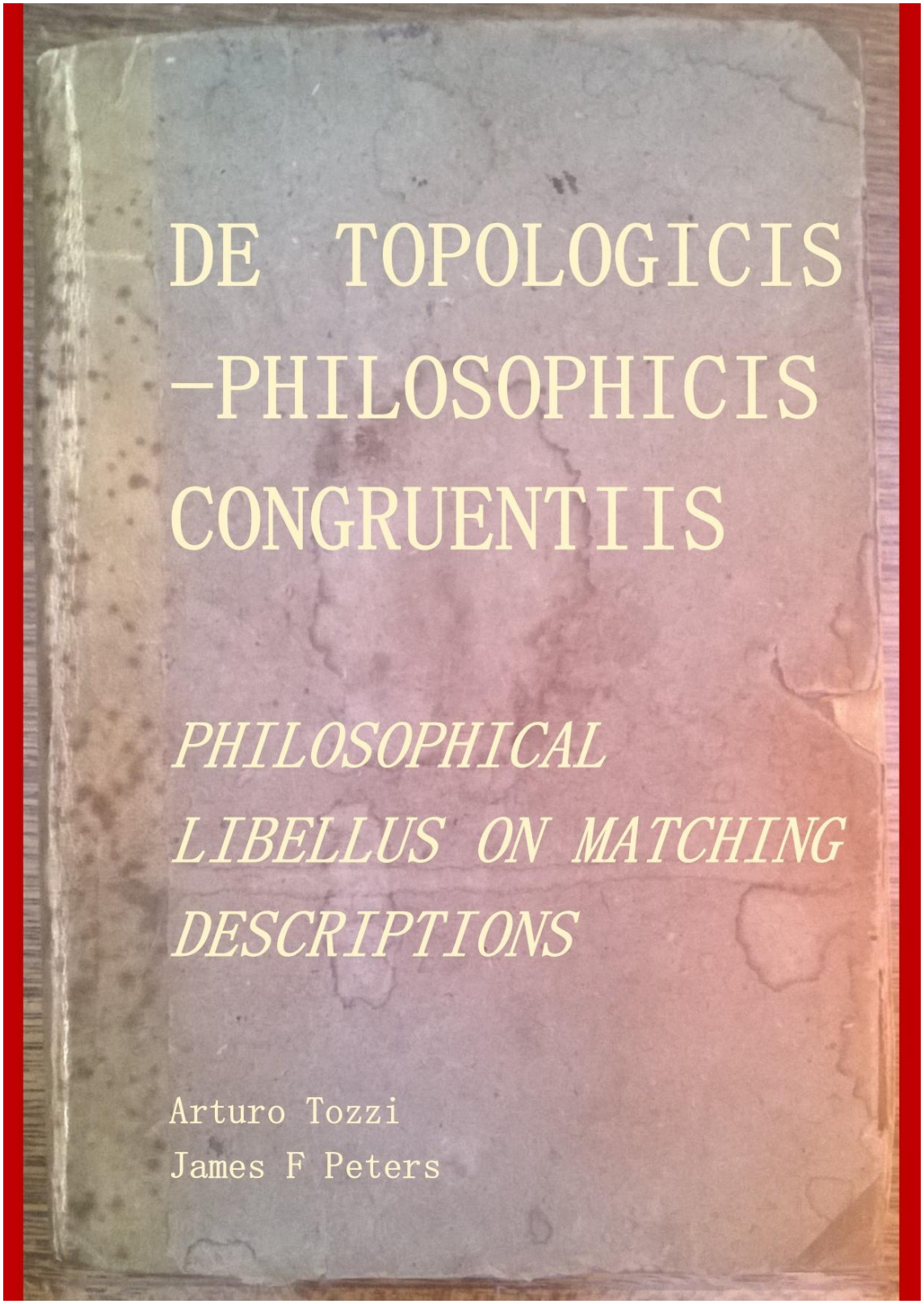
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PHILOSOPHICAL
LIBELLUS ON MATCHING
DESCRIPTIONS
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PHILOSOPHICAL LIBELLUS ON MATCHING DESCRIPTIONS

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This is about beings and principles. Topology, the mathematical branch that assesses objects and their properties preserved through deformations, stretching and twisting, allows the investigation of the most general systems features. In particular, the Borsuk-Ulam Theorem (BUT) states that, if a single point projects to a higher spatial dimension, it gives rise to two antipodal points with matching description. Physical and biological counterparts of BUT and its variants[1] allow a philosophical inquiry of world and events. The opportunity to treat systems as topological structures makes BUT a universal principle underlying natural and artificial phenomena. Here we focus on Universe development and brain function.

[1] The antipodal points in the classical BUT have been extended to antipodal regions and antipodal objects. The *n*-sphere in the classical BUT has been extended to *n*-dimensional manifolds. A description occupies space and is as an object in its own right. This is the case, since a description can either be a single feature vector or a set of feature vectors. For example, the companion of worldline (*aka* string) is its description, which is a feature vector having feature values representing features such as duration, length, and twisted. And this description is a point in an *n*-dimensional space. The companion of a worldsheet (surface determined by a collection of strings) is a set of feature vectors, which is a region of an *n*-dimensional space: description of worldsheet and descriptions of the individual worldlines on the worldsheet.

I. SYMMETRIES

Every feature is embedded in a structure.
The structure displays n-dimensions.
We call this feature *single description.*
Single descriptions are points, or lines.
Single descriptions are perimeters, or areas.
Single descriptions are single points.
Single descriptions are functions, or vectors, or tensors.
Single descriptions are algorithms, or parameters.
Single descriptions are spatial patterns, or images.
An illumined surface is a single description.
Single descriptions are groups, or range of data.
Single descriptions are symbols, or signs.
Single descriptions are temporal patterns, or movements.
Single descriptions are particle trajectories, or paths.
Single descriptions are syntactic, or semantic, constructions.
Single descriptions are thermodynamic parameters, or signals.
A region is single description.
Single descriptions are strings.

The structure is a sphere, or a donut.
The structure is a football field.
The structure is a horseshoe.
The structure may display different shapes.
The structure may display holes.
A structure may display an intrinsic, *internal* point of view.
The structure may just exist in - and on – itself.
I call something real when something does exist.
When we say something does exist, we mean something has a physical meaning for a public observer.
Public is objective, private is subjective.
The single description of a private observer is her own standpoint.
A centaur does exist in her mind.

The structure displays a number n of dimensions.
N stands for spatial, or temporal, dimensions.
Spheres can be made not just of space, but also of time.
N stands for a natural, or rational, or irrational, or imaginary number.
N may stand for fractal dimensions.

Single descriptions projects onto a n+1 structure.
Single descriptions stand for two descriptions with matching features on the n+1 structure.

A single description on a circumference maps two points with matching description on a sphere.
And vice versa.
There exist on the earth surface two antipodal points with the same temperature and pressure.
I call the two above matching features *matching description*.
Projection, connections, not causation.
It looks like a transparent glass sphere between a light source and our eyes. We watch two lights on the sphere surface instead of one.
But the two lights are not just images, they are also real.
Matching descriptions allow entities commensurability.
Matching descriptions are assessed at one dimension of observation, single descriptions at a lower one.
Observation is public and private.
Matching descriptions display more energy than their single descriptions.
Matching descriptions display more information than their single descriptions.
A force is required to go from lesser to the higher dimensions.
Not vice versa.

Symmetries underlie the world.
Symmetries are the most general features of systems.
Symmetries are widespread.
Symmetries occur at every level of organization.
Symmetries provide a general approach.
Symmetries are real. They exist.
Symmetries do not involve thermodynamics.
Symmetries do not involve information.
A symmetry break is detectable at a lower dimension of observation.
Single descriptions are broken symmetries.
Or, the symmetry is hidden at the lower dimension.
A broken symmetry is restored when going one dimension higher.
Matching descriptions are restored symmetries.
Symmetries are matching descriptions.
When we evaluate systems one dimension higher, we see their symmetries.
If we assess just single descriptions, we cannot see their matching descriptions.
Symmetries are often hidden from subjective observers.
Symmetries explain how network communities integrate or segregate information.

II. ONTOLOGY

The Monster is embedded in infinite dimensions.
The Monster is the highest number of dimensions, elements, symmetries.

The Monster does exist.
The Monster is prior to its modifications.
The Monster is in itself.
The Monster is conceivable through itself.
The Monster is a concept which can be formed independently of any other concept.
The Monster encompasses all the concepts. the features, the symmetries.
The Monster contains whatever exists.
The Monster involves no negation.
The Monster displays intrinsic movements.
The Monster moves with time passing. It is into the time and it is time.
The Monster's action is determined by itself alone.
The Monster is called free, which exists solely by the necessity of its own nature.
Monster's action is determined by itself alone.
The Monster is necessary.
All the symmetries and dimensions are in the Monster.
The Monster is matching description.
The Monster encompasses our Universe.
And countless other ones.
Our Universe is loss of dimensions.
Our Universe encompasses just some Monster dimensions.
Like a particle travelling in just some dimensions of a donut-like structure.
The Universe does not have windows.
Trajectories can be closed.
The world is determined by some structure external to itself, either the Monster, or its subparts.
The world displays a number of dimensions lower than the Monster.
The world is a map from a level to another.
The world is topological.
The world is rather constrained.

III. STRINGS

Strings are closed trajectories.
Strings contain at least a hole.
Strings are world lines.
Strings are the events of the Monster.
Strings are intertwined at different levels.
Strings are single descriptions.
Strings are matching descriptions, one level higher.
Strings are the world.

IV. NATURAL PROJECTIONS

The world is intertwined levels, correlated by maps.
Projection, connections, not causation.
Proximity and mappings.
Structural order of mappings.
Intertwined levels, correlated by maps.
Mappings, not thermodynamic relationships.
Mappings, not information relationships.
Maps do exist.
Energy levels allow dimension increases or decreases.
System's properties in the real space, to be translated to abstract spaces.
And *vice-versa*.
Entangled quantum particles are single descriptions, disentangled particles are matching descriptions.
Fractals and power laws are matching descriptions among different spatial and temporal scales.
Nonlinear bifurcations are matching descriptions.
I assess chaotic behaviors in linear terms, in terms of single descriptions.
Assessment is feasible from a dimension lower to a higher one, but also vice versa.
Shannon entropy's plot encompasses matching descriptions.

Life is mapping.
Life is change of dimensions.
Seeds have single descriptions.
Fruits have matching descriptions.
Living beings have matching description, their inorganic constituents have single description.
Metabolic pathways are strings.
Homeostasis is intertwined strings.

V. CENTRAL NERVOUS SYSTEM

The brain encompasses the mind.
The mind encompasses the brain.
The one maps the other.
In guise of a donut-like structure.
The brain or the mind do exist.
The brain is also function and activity.
Brain activity is phase spaces. And projections. And maps.
Brain activity is multidimensional.
In guise of a donut-like structure.

Brain activity is from above, not from below.
Spontaneous and stimuli-evoked brain functions are physically correlated.

The world external to observers is single description.
The world internal to observers is matching description.
The environment is single description.
The brain is matching description.
The brain contains more dimensions, more symmetries than the environment.
The brain contains less dimensions, less symmetries than the Monster.
The brain's toolbox consists of its symmetries.
Not more.
The brain encompasses all the concepts its symmetries might display.
Not more.
The brain is rather constrained.

Single descriptions of biologically significant environmental inputs are matching descriptions in the brain.
Multisensory integration occurs at the first stages of processing.
Every neuron displays different functions and description.
Every neuron is single description.
The whole brain is matching description.
Thoughts are matching description.
Thoughts are knots.
Contrary to common belief, the object's concept is more intricate than the object.
Mental images of cats are not pale copies of cats.
Mental images of cats are matching descriptions, cats are single descriptions.
The object's concept lies in a dimension higher than the object.
The brain activity lies in a dimension higher than the environment.
Feed-back projections are matching description, feed-forward projections are single description.

Single descriptions grasp less information and entropy than matching descriptions.
The value is half, testable.
Nervous topographic maps are matching descriptions.
Brain functions are matching description: discrimination, moods, memories, habituation.
Also cognition, preferences, abstraction, planning, calculations, insight are matching description.
Prepositions are matching descriptions. Or single descriptions. It depends on the dimension where the observer stands
Intertwined levels, correlated by maps.

A matching description might be spitted in present and past (memory retrieval)

A matching description might be spitted in present and future (previsions, imagination).
A matching description might be spitted in myself and others (expectations, mind reading).
Now and here, visual attention plays a foremost role.
Attention is a gauge field.
Long timescales lead to sure perceptions.
Time is a gauge field.
The brain is intertwined levels, correlated by maps.
Projections, connections, not causation.

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