Chapter 4. Mosaic Theory: from biocosmology to dialectics, A biocosmological perspective
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Over a number of years, Konstantin Khroutski and his colleagues in Russia have been developing a neo-Aristotelian Biocosmological philosophical stance, focusing, inter alia, on Aristotle’s idea that the laws of the microcosm mimic the laws of the macrocosm. In this context, the word Biocosmology is usually written with a capital letter to distinguish the philosophical approach from experimental biocosmology, i.e. the bid to find evidence of extra-terrestrial life, including the possibility of intelligent extra-terrestrial life. In other words, we are speaking of the approach Aristotle applied to the universe as organic, or biological in modern terms, rather than physical. Aristotle’s universe is one whole organic cosmos, every entity of which is subjected to purposeful forces that are basically the subject’s causa finalis and entelecheia, and are ultimately ruled by the Nous – cosmic logos. Place and function are inherent, playing a part as an entity (microcosm) in one whole macrocosm.

In a modern perspective, the Biocosmological philosophical stance leads to the hypothesis that the laws of complexity which rule the complex systems found on our planet, i.e. the living beings, could also be considered as general laws for complexity everywhere in the universe. From this point of view, the mosaic model presented in the two first chapters fits this philosophical stance very well. As stated by Arthur Saniotis, the mosaic model “is holistic and non-reductionist, recognising that biological and cosmic processes follow Aristotelian causes.” As the mosaic model based on observations of living organisms can also be applied, as we have seen, to many areas in psychology, linguistics, sociology and philosophy, the model could also be considered a good candidate as one of the main elements in the Biocosmological approach. Following what we call the Aristotelian-Khroustskian stance, we can speculate that the structure of complexity and its construction through juxtaposition and integration (as defined here for biological entities with the whole not cancelling the autonomy of the parts) might also apply

96 Khroutski 2008; Khroutski 2010.
97 Saniotis 2013: 337.
to other entities in the universe. The focus of Chapter 5 is on this Aristotelian concept, presented with more concrete arguments.

The Biocosmological approach goes further, and the present chapter will present another element in the approach: the architecture of living beings as triune entities. We will show that this leads to the classical philosophical concept of dialectics, presented above as a possible extension of the mosaic model.

**Triunity in living beings**

It has been argued that triunity may be an elementary process in the functioning of organisms. Khroutski\(^98\) cites a number of biological examples of triunity in living beings, e.g. the sleep-wake cycle, systole/diastole and the “(one) vegetative (super) system: the parasympathetic, sympathetic and metasympathetic (sub)systems\(^99\).” It may be noted that western medicine is largely based on simple dichotomies, distinguishing the sympathetic and parasympathetic systems, and has therefore tended to overlook the autonomous action of the “free ganglia” in the metasympathetic system; these govern, for example, the beating of the heart, a continuous and spontaneous activity not requiring any action from the sympathetic or parasympathetic systems and which, to a certain extent, integrates occasional, opposite actions from the sympathetic and/or parasympathetic systems. Similarly, between sleep and wakefulness, there is a state of waking with the possibility of the concomitant existence of both “poles”, even though they may appear alternately. This can be seen as an expression of the “law of polarization” as defined for sociocultural processes by Pitirim Sorokin\(^100\) (mentioned in Chapter 2) with his contribution to a new, mosaic-like sociology.

I maintain that for biology, such triunity may be much broader in scope, provided that it is linked to changes in metabolism occurring with time and ultimately leading to the ontogenetic development of living beings. Here again a modern scientific approach would first focus on the dichotomy between two opposing entities, e.g. opposite reactions in a biochemical equilibrium, these being the permanent bases of cellular metabolism, i.e. of life, and also, at a more integrated level, the opposition between release and inhibition regulating hormones, or the two hemispheres of the brain and their effects on the behaviour of higher animals. Simplicity prevails and binary division is commonly found in living beings. The physical movement of animals involves a right and left side in an approximately symmetrical arrangement, leading, in some cases to two symmetrical brain hemispheres.

However, the focus on two opposing actions overlooks the later stage in time when such actions achieve balance, and in the subsequent stage of ontogeny when the two opposing actions produce a more stable state, “overruling each other by

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\(^98\) Khroutski 2010.
\(^99\) Khroutski 2010: 70.
\(^100\) Sorokin 1965.
turns\textsuperscript{101}, reaching a state of “oneness of the two autonomous poles (bipolar unity\textsuperscript{102})” – a temporary, conclusive and unitary stage of the opposition, creating a triadic unity which may become the point for further triadic developments.

The Dialectical Roots of Triunity

Triunity may be considered as a development arising from the philosophical concept of dialectics. It can be applied to both the field of the mind and, more generally, the material world. For the mind, it refers to Hegelian movements of thought. For the material world, it refers to material movements as first described by Heraclitus in ancient times, and to the limited scope of natural dialectics and the over-simplistic examples presented by Engels in his “Dialectics of Nature”. Engels, with the limited biological knowledge of the time, measured physical phenomena such as movement, tides, heat and electricity, producing arguments for the dialectics of nature which are relatively unconvincing. Biological examples such as the complex ontogeny of living beings or the evolution of species or, as mentioned earlier, the numerous reactions of cellular metabolisms, could provide clear and strong arguments for the triadic development of the biological and terrestrial phenomena in the universe. Triadic development is better suited as a prerequisite for dialectics as argued by Hegel, but is applied by Engels to the physical side of nature instead of thought. This is a critical point as it makes it possible to link modern neo-Aristotelian stances with Hegelian dialectics. It has already been stated that dialectical movement can be understood as a mosaic system, being based on a series of contradictions between two opposing processes (thesis/antithesis), which can be considered as juxtaposed, while contradictions are being solved and overcome (synthesis) in what can be considered as an integration of two opposing processes. This architecture, which is in line with the architecture of the mosaic model, can be found in the logical dialectics of Hegel as well as in the materialistic dialectics of Engels. The triune movement, as argued by Khroutski and proponents of neo-Aristotelian Biocosmology is also in agreement with the dialectical movement, thus giving a likely dialectical interpretation to the Biocosmological approach.

Biocosmological triunity and certain modern philosophical stances

It has been noted that some modern thinkers, both scientists and philosophers, could develop arguments that would fit perfectly into the mosaic model. On similar lines, I shall show that a number of modern thinkers have developed stances that can fit the triune Biocosmological viewpoint, even though such stances do not necessarily include all the laws involved in the neo-Aristotelian perspective, but simply express concepts which can easily rally with triunity; even

\textsuperscript{101} Khroutski 2010: 72.
\textsuperscript{102} Khroutski 2010: 73.
in philosophical arguments, for example, with the theses of Lupasco who claims to be non-Aristotelian.

It may seem out of place to quote the Romanian philosopher Stephane Lupasco (1900–1988) who is known for his arguments for non-Aristotelian logic, but I maintain that his reasoning is neo-Aristotelian. In his book *The Principle of Antagonism and the Logic of Energy*[^103], Lupasco questioned the *tertium non datur* principle of classical logic which does not leave any logical scope beyond the duality of being and non-being. Lupasco maintained that one phenomenon could simultaneously include both an action and its opposite, but he introduced a “third state” between the two opposing entities, going beyond the classical principle of duality, and defining something very similar to Konstantin Khroutski’s triunity. Today Lupasco’s work is little known, but I would advocate a neo-Aristotelian interpretation of his work. Lupasco’s opposition to *tertium non datur*, with no scope beyond the duality of being and non-being, could be interpreted in a biological context as the equilibrium between two opposite actions producing a balance in the third stage of triunity; Lupasco is thus seen as having an Aristotelian view. A biological understanding of complexity, such as the Aristotelian approach, would have Lupasco’s apparent opposition to classical logic dismissed as a mere difference in expression.

Cherlonneix, a promising young French philosopher, is interested in processes underlying biological phenomena and in particular the philosophical consequences of apoptosis (programmed cell death), which has been shown by Ameisen[^104] to be a necessary stage in the evolution and development of organisms. Cherlonneix conducted an in-depth analysis[^105] of the opposing actions of apoptosis and its inhibition which he described as “a-death”, or non-death. However, constant movements in metabolism, such systematic and opposite actions of death versus non-death occurring at the cellular level, must reach a stable third stage, even if only a transient stage, for living beings to develop their structures (as is the case with the mosaic structures according to my arguments). In other words, Cherlonneix’s views could be a description of the basic processes of the dialectics of life, in which mosaic structures would be the third (transient and stable) stage which could be cited as further evidence for triunity being a valid model.

The works of Lupasco and Cherlonneix can be seen as presenting a triune basis for the emergence of such mosaic structures, thus bringing a (neo)Aristotelian approach to the dialectics of life.

[^103]: Lupasco 1951.
[^104]: Ameisen 1999.
[^105]: Cherlonneix 2008.
Partial conclusion

Our model of complexity in mosaics can be quoted as a good example of the Biocosmological approach as developed by the Russian philosopher Konstantin Khroutski and the neo-Aristotelian school. Since the mosaic model of complexity can be applied to a great number of different fields, it may be possible to apply it to both macrocosmic and microcosmic entities. The same is true for triunity, another classical stance of the Biocosmological approach, it being the fundamental unity of a three components structure. The argument that biological structures are based on triune principles can be backed by clear examples seen in the metabolic activity of living beings; the argument can also be related to the classical (triune) dialectical movement: thesis, antithesis, synthesis. The triune structure of living beings can clearly be extended to apply to different fields both at the materialistic level (in line with Engels’ “Dialectics of Nature”) and at the ideological level (in line with Hegel’s dialectics). The dialectical approach thus stands as a legitimate and correlated extension of our mosaic model and fits both macrocosmic and microcosmic entities. These considerations, as well as the work of philosophers such as Stephane Lupasco or Laurent Cherlonneix, lead to a neo-Aristotelian approach to the dialectics of life.