Chapter 5:  
The Layered Structure of the World in N. Hartmann’s Ontology and a Processual View  
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5.1 Introduction

According to H. Wein (1957, ix), the philosophy of N. Hartmann belongs to the “new metaphysics” movement that emerged between the two World Wars, alongside the work of S. Alexander (1920) and A.N. Whitehead (1926). Hartmann preferred the expression ‘new ontology,’ where ‘ontology’ is understood as a theory of categories (Kategorienlehre). The new ontology is purified of irrational and dogmatic elements, whereas metaphysics is not. For Hartmann, the “old metaphysics” was – using the words of J. Bocheński (1957, 215) – “a tissue of questions to which there are no answers.” The new ontology, as developed e.g. in Der Aufbau der realen Welt (1940), was to include the totality of possible experience, and to explore all three areas of being: the moments of being (Seinsmomente), the types of being (Seinsweisen), and the modes of being (Seinsmodi). In the next step it leads to the very subject-matter of Hartmann’s ontology, which is the comprehensive study of the structure of the real world.

The following paper deals with just one aspect of this tremendous task, namely with the concept of world stratification. The theory of ontological levels is rather rarely discussed in philosophical literature. Our

1 Compare: Cicovacki 2001, 162.
2 This opinion is shared by Poli 2001, 281, who claims: “Contemporary theories of the levels of reality suffer from a marked lack of conceptualization. Dealing with this problem requires knowledge of what is at stake: adopting a theory of levels entails modification of the metaphysics implicit in a large part of contemporary science and philosophy.” Nevertheless, Kim 2008, 139, maintains that the problem of levels is widely discussed in the scientific perspective: “In fact, talk of “levels” – as in “level of description,” “level of explanation,” “level of organization,” “level of complexity,” “level of analysis,” and the
point of view is not restricted to Hartmann’s position only, but also includes several Whitehead’s ideas and some elements of the theory of emergence. The comparison of two thinkers, Hartmann and Whitehead, is not an obvious thing to do. One may say that their philosophies are completely different. In fact, both thinkers derive from diverse traditions: Hartmann’s background was the neo-Kantian school of Marburg and the phenomenological movement, while Whitehead’s background was the British empiricism of Locke and Hume, and Cambridge mathematics and logic. Moreover, as Wein maintains, they were not mutually influenced at all, and at first glance “Hartmann’s Realontologie is seen to be obviously incompatible with Whitehead’s “Philosophy of Organism”” (Wein 1957, x-xi).

Fortunately, the difference between Hartmann and Whitehead is superficial, as there are many common tendencies that bring these seemingly distant philosophies together. In his wide-ranging comparative study, J.N. Mohanty (1957) identifies a number of analogies between the two philosophers: starting from their admiration for classical metaphysics (Aristotle and Plato), through the ontologization of every possible experience and the comprehensive elaboration of so-called “philosophical cosmology,” and ending with the status of ideal being. Mohanty writes: “On many occasions both Whitehead and Hartmann reflect tendencies in common which may be taken as pointing to a new philosophical cosmology. The most striking is the treatment of the categories ‘dimension’, ‘structure’, ‘relatedness’, ‘process’ and ‘society’” (Mohanty 1957, 148). The following paper provides a number of analyses concerning some of these categories.

like – has thoroughly penetrated not only writings about science, including of course philosophy of science, but also the primary scientific literature of many fields.” Elements of the contemporary theory of levels can be found in studies of Bunge 1979, Blitz 1990, Poli 2001, Morowitz 2002 or Ellis 2002.

3 The classic theory of emergence was developed mainly by Alexander 1920, Morgan 1923, and Broad 1925; for an introduction see: McLaughlin 2008. There is a vast amount of contemporary works on that subject; for comprehensive studies see e.g.: Clayton, Davies 2006, Kistler 2006, Bedau, Humphreys 2008.

4 Mohanty discusses both systems and emphasizes their comprehensiveness and completeness. See his 1957, xxxviii: “Nicolai Hartmann and A.N. Whitehead both have thought out comprehensive systems of philosophy. Nicolai Hartmann’s Aufbau der realen Welt and Philosophie der Natur are comprehensive studies in the categories of the real world. A.N. Whitehead’s Process and Reality is a comprehensive cosmology.”
Nevertheless, for now it is important to introduce just one category, elaborated by both thinkers, that would constitute a starting point for our further investigations. It is the category of real possibility (Realmöglicherkeit), which, as we suppose, constitutes a key concept for the understanding of the world’s layered structure.\(^5\) Hartmann defines “real possibility” as “the totality of conditions present at a given time within the real context” (1975, 27). Whitehead in turn writes about real potentiality, introducing it as a conditioned indetermination of a real concrescence within a correlated world, and identifies it with the physical pole of each actual entity (1926, 23 and 80). Hartmann and Whitehead both underline the twofold aspect of the category in question – on the one hand, it provides the conditions that determine a real situation, but on the other, it leaves an element of indetermination and an opportunity for choice. However, there are obviously some minor differences between both concepts. Mohanty (1957, 144) says that “while for Hartmann the actual entity A is itself “real”-possible, for Whitehead A determines a range of “real” possibility relative to itself!”\(^6\) Nevertheless, both Hartmann and Whitehead would agree that real possibility sets up the series of conditions for each concrete being, letting it “decide” which one to follow and which one not. We believe the elaboration of such a series of conditions, which eventually make a concrete real, is the fundamental task in explaining the layered structure of the world. Therefore, let us accept the working definition of the ontological study of the real world as the categorial analysis of real possibility, or equivalently – following Hartmann – analysis of the theory of categories.

The concept of world-stratification can be expressed by a statement: the real world is built out of consecutive ontological layers that stay in mutual relation and include concrete beings. Hartmann’s ontology contains many significant details on this issue. We present them in the first

\(^5\) Such opinion is shared by Galewicz 1987, 60: “The central role in the Hartmann’s analysis of modal categories of the real being is performed by a revised traditional concept of real possibility.” [translation – J.D.]

\(^6\) In his studies over the Whitehead’s concept of real potentiality, Mohanty 1957, 143, distinguishes two meanings of that category: the first, “which consists in (or, more appropriately, is provided by) the “extensive continuum” or the order or the system of the world within which all future actual entities shall emerge,” and, second, “the various “real” possibilities which are relative to the various actual entities in course of process.” The author adds that the “latter meaning of “real” possibility comes nearest to Hartmann’s usage of the term.”
part of this article. The second part includes some basic distinctions within the process philosophy of Whitehead, referring directly to the theory of ontological levels. The third and main part of the paper is divided into three sections. We consequently elaborate there – on the ground of both Hartmann’s and Whitehead’s systems – the concept of concrete, the concept of layer, and the concept of hierarchy. The successive results of our investigations are expressed in seven theses that together compose the set of the most fundamental statements of stratalism – the philosophical position defined in the fourth and last part of the work.

5.2 Elements of Hartmann’s ontology

One of the basic premises of Hartmann’s ontology is that categories are principles (Prinzipien) of being. He also uses the expression ‘fundamental determinations’ (Grundbestimmungen). Thereby, Hartmann breaks with a traditional understanding of categories as predicates, basic concepts, or ideal entities. Categories are neither merely linguistic creations describing real objects, nor idealities participating in reality. Their ontological status establishes them as principles, constituting the real world, and independent of any external determinations.\footnote{One can explain the status of so-understood categories by the analogy with the status of principles present in the physical world. For example, the principle of relativity “is present” in every admissible frame of reference, likewise e.g. the category of causality “is present” in mutually influenced spatial beings.}

The co-relative of the category of principle is that of concrete (Konkretum).\footnote{For the discussion of the relation between concrete and category within the Hartmann’s ontology, see Mohanty 1957, 9–11, 31. One of the author’s conclusions is significant for our problem of ontological levels (1957, 31): “We have seen that Hartmann makes a sharp distinction between the two, between ideal being and category. The problem of inter-sphere relation is not then a problem of determination.”}

“Principle” and “concrete” are the first of twelve mutually associated pairs of the most general categories distinguished by Hartmann. At the same time, the first of several categorial laws, on which he established his architectural ontology,\footnote{The expression ‘architectural ontology’ comes from Albertazzi 2001, 299.} concerns the interpretation of categories as principles: 1.1. Law of principle (Gesetz des Prinzips): “to be a category is to be a principle.” (Hartmann 1964, 383) The statement helps to avoid the so-called fallacy of “chorism” (Gr. chorismon –
abstract, derived) that consists in tearing categories away from concretes, in depriving the unity that takes place between a principle and an object determined by it (Hartmann 1964, 69–78). In Hartmann’s approach categories stay in a strict connection with concretes – they define specified aspects of things and are obligatory for them.

The relation between categories and concrete beings, as introduced above, implies a novel solution to a traditional problem. According to Plato’s position, the occurring relation is *the immanency of things within the sphere of principles*. The invariable and eternal reality of ideal entities is primordial in reference to the changeable and imperfect world of shadows. Therefore, an ontological foundation of temporal beings is entrenched in a transcendent sphere of eternal entities. The relation is explained inversely within Aristotle’s position, which defends *the immanency of principles in things*. There (i. e., in Aristotle), the concrete being constitutes the primordial reality, in which one may find principles only secondarily (compounds of substantial forms and beings).

Hartmann states that such distinctions are based on the false assumption of a relevant divisibility of principles and things. At the same time, he does not reject any tradition in question, concluding they are not contradictory but complementary to each other. If one cannot separate concretes from their categories, then one cannot decide if the former exists within the latter, or vice versa. Hence, it is reasonable to argue for their mutual dependence, and to ascribe a symmetry-feature to the relation of primordiality: in reference to a certain aspect of research it is to say that things exist within principles. The complementarity of these two traditions leads us to conclude that categories are nothing without their concretes, and concretes nothing without their categories.

Having such a concept of categories and its relation to concretes described above, it is now easy to define “ontology.” Hartmann refers explicitly to the Aristotelian definition – the science of being qua being. Agreeing to this general formulation of its subject-matter, he goes further and claims (1975, 13): “All ontology has to do with fundamental assertions about being as such. Assertions of this sort are precisely what we call categories of being.” Therefore, the ontological investigations are named the theory of categories (*Kategorienlehre*). The analysis of the categories of being is at the same time the analysis of the basic principles that determine the successive aspects of things. Hence, ontol-

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10 Compare Mordka 2008, 31: “Hartmann’s ontology is often called the theory of categories.” [translation – J.D.]
ogy reaches to the primordial and principal features of being – it is the *philosophia prima*. Simultaneously, however, it is not independent from the phenomena described by the natural sciences. Benefiting from their results, ontology takes them into account and criticizes them, only to provide strictly ontological theses at the very end of the inquiry – it is the *philosophia ultima*. This twofold status of ontology allows it to maintain a permanent reference to a variable scientific knowledge about the empirical world, and to defend, at once, its own subject-matter, which reaches beyond a merely superficial analysis of what appears.\(^{11}\)

The basic distinction within Hartmann’s theory of categories, which is essential for the problem of stratification, is the dichotomy between fundamental and special categories. While the former concern all types and layers of being, the latter are present only within one layer. The fundamental categories include the modal categories, such as real possibility, and the twelve pairs of the most general determinations, e.g., structure-modus, form-matter, substratum-relation.\(^{12}\) The purpose of this kind of categories is the extraction of the basic determinations of being, of the minimal content unifying not only the various layers, but also the various types of existence.\(^{13}\) The special categories, in turn, find their application exclusively within a certain ontological layer, determining its essential features. Therefore, their purpose consists in the diversification of layers, in searching for what the ontological difference between them constitutes.

According to Hartmann (1975, 64), there are four main ontological layers and their corresponding sets of special categories that must be distinguished:

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11 Two statements from Galewicz 1987, 33–34 picture the duality of Hartmann’s ontology well: “[Hartmann] maintained that ontological investigations should be an extension and a broadening of empirical research. Ontology asks for fundamental determinations of being, it reaches to what is principal and primordial,” and: “Aspiring to the foundations of general being, ontology needs to start from particular phenomena. Because of this, it also needs to assume the totality of results achieved so far by natural science.” [translation – J.D.]

12 The full list can be found in Hartmann 1964, 211–212.

13 However, it is not clear whether fundamental categories are the basis of the real type of being only, and, hence, possess an *inter-layered character* (as e.g., Galewicz 1987, 81 proposes), or they constitute the basis of all the types of real, ideal and unreal beings, and thus possess a *trans-boundary character*. Mordka 2008, 38–40, claims that Hartmann’s distinctions need to be further specified, and proposes the term ‘fundamental categories’ for the former, and the term ‘elementary categories’ for the latter.
• *inorganic* being (*anorganisches Sein*) – e.g., space, substantiality, (mechanical) causality;
• *organic* being (*organisches Sein*) – e.g., finality, organic system, metabolism, homeostasis;
• *psychical* being (*seeliges Sein*) – e.g., act and content, consciousness and unconsciousness, pleasure and distress;
• *spiritual* being (*geistiges Sein*) – e.g., thought, cognition, desire, freedom, valuation, personality.

Hartmann maintains there are two possible relations occurring between consecutive layers\(^{14}\) of the real world. He names them *super-formation* (*Überformung*) and *super-position* (*Überbauung*).\(^{15}\) If we consider just the four levels in question, then the former relation is present solely between inorganic and organic levels, while the latter occurs in the next two places: between the organic and the psychical, and between the psychical and the spiritual levels. The super-formation relation, as it occurs in the natural (material) world, leads to the series that is “a continuous superimposition of forms, which each form serving as matter for another form superimposed (= superformed, J.D.) upon it” (1975, 68). Hence, such forms of dependence are expressed by the *matter-form* relation, and this relation seems to be weaker than the super-position relation, whose form of dependence is based on the *bearer-borne* relation. Here, the new categories are not just re-formed versions of the categories on the lower layer, but they are qualitatively new principles governing all higher than organic levels of being. “The “inner world” […] is an ontological region “above” organic structure, but it only rests “upon” it as on its ontological basis. It does not consist “of it” as of its material” (1975, 78 – 79). Psychical categories emerge from organic categories, and spiritual ones from psychical categories. That is to say,

\(^{14}\) We will use the term ‘layer’ [*Schicht*] in reference to any grade of the world’s complexity possessing its own, specified set of categories, and the term ‘level’ [*Stufe*] to indicate the main realms of being that may include many minor layers. The Latin term ‘stratum’ will be used as the general term for the whole conception, which we call *stratalism*. For different terminological choices compare Poli 1998, 203, Peruzzi 2001, 239, footnote 22.

there are at least two interruptions in a continuous series of things and the categories determining them.

One final issue arising from Hartmann’s ontology that is important for our investigations is the set of categorial laws. They express in detail the connections taking place between successive layers and within them. The categorial laws are, in fact, the very core of Hartmann’s special ontology, leading to the stratified viewpoint. There is no need to discuss in details all of these laws, explaining them one by one, since we will use just some of them later. The following table exhibits all of Hartmann’s categorial laws divided into four groups:

Table 5.1 Hartmann’s Categorial Laws

<table>
<thead>
<tr>
<th>1. Laws of categorial validity</th>
<th>3. Laws of stratification</th>
</tr>
</thead>
<tbody>
<tr>
<td>relation of categories to concretes and layers</td>
<td>vertical relation among categories and layers</td>
</tr>
<tr>
<td>1.1. law of principle</td>
<td>3.1. law of recurrence</td>
</tr>
<tr>
<td>1.2. law of layer validity</td>
<td>3.2. law of modification</td>
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<tr>
<td>1.3. law of layer affiliation</td>
<td>3.3. law of categorial novum</td>
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<tr>
<td>1.4. law of layer determination</td>
<td>3.4. law of layer distance</td>
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</tbody>
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<thead>
<tr>
<th>2. Laws of categorial coherence</th>
<th>4. Laws of categorial dependence</th>
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<tbody>
<tr>
<td>horizontal relation among categories within a layer</td>
<td>existential dependence of layers</td>
</tr>
<tr>
<td>2.1. law of connectivity</td>
<td>4.1. law of strength</td>
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<tr>
<td>2.2. law of layer unity</td>
<td>4.2. law of indifference</td>
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<tr>
<td>2.3. law of layer wholeness</td>
<td>4.3. law of matter</td>
</tr>
<tr>
<td>2.4. law of implication</td>
<td>4.4. law of freedom</td>
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The first group of laws explains how categories are preset in concretes and layers. The main law here is the one already mentioned – 1.1. Law of principle – stating that there are no categories outside their concretes. The second group emphasizes a peculiar bond that connects categories within the same layer – the categorial coherence, which is a multi-aspectual relation that governs categories horizontally. It guarantees that categories, when taken together, will possess a special type of

16 Hartmann dedicates a large part of his Der Aufbau der realen Welt (1964, chapters 43–60) to a detailed elaboration of these laws. A short formulation of the various laws can be found at the following pages: 1st group: 382–383, 2nd group: 394, 3rd group: 432, 4th group: 471–472.
unity, and that they will constitute a whole (a layer), which is more than the sum of its components. The next, third group of categorial laws, concerns vertical relations among categories within different layers and an entire hierarchy. The main thesis here is that the lower level categories are included, in large part, in the higher-level categories, but not conversely. The final group deals with an existential dependence of layers, in which they manifest their mutual relations in abstraction from the content or from the form of any particular layer.

5.3 Some notes on process philosophy

There are several arguments against the possibility of building the concept of stratification on the ground of process philosophy.\(^\text{17}\) Let us consider some of them:

- The world is a flowing stream of actual entities – the metaphor expresses one of the basic processual thesis that each being is equal to the others, and there is no gradation among them.
- No true categorical novelty comes to be – all categories are already present at the fundamental level of actual entities.\(^\text{18}\)
- An actual entity is dipolar (e.g., Whitehead 1926, 45, 108, 239) – a physical pole and a mental (conceptual) pole together constitute an inseparable structure of each being; mental categories are present at the lowest level – as in a weak panpsychism.\(^\text{19}\)
- Constant rhythm: one-many (e.g., 1926, 21, 154, 341) – all ontological levels are included within (reduced to) the creative process of constituting one from many and many from one.

\(^\text{17}\) In the paper, we use the term ‘process philosophy’ in its narrow sense that refers only to A.N. Whitehead’s metaphysics. On the contrary, any philosophical position that emphasizes process as a fundamental type of being would fall under a wider understanding of the term. For an accessible introduction to Whitehead’s philosophy see Sherburne 1966 or Cobb 2008.

\(^\text{18}\) In reference to Hartmann’s ontology, Mohanty 1957, 126 says: “Whitehead’s cosmology is a unitary picture. […] Thus categories culled from all levels are put together to describe the actual entities. This violates the very fundamentals of the Hartmannian ontology.”

\(^\text{19}\) Whitehead presents a peculiar form of panpsychism (also called panexperientialist) conveyed f.i. by the statement: “Conceptual feelings [that constitute the mental pole of an actual entity – J.D.] do not necessarily involve consciousness.” (1926, 165). See also Griffin 1998.
• Ontological continuity – there are no sudden changes at the macroscopic level that could create gaps, thus producing distinct and separate layers.

If we want to establish a processual theory of levels, then we need to deal with these issues. At first glance, the above-mentioned theses seem to make our task impossible, because they seem to contradict the vision of hierarchically structured world. It is not necessarily so. In fact, almost all of the enumerated problems are off the mark – their significance depend on the interpretation of Whitehead’s technical terms within his metaphysics. After attaining a proper understanding of the concepts hidden in these enigmatic sentences, the issues they raise may support our attempt to establish the ontological stratification. Nevertheless, in comparison with Hartmann’s ontology, the last thesis (of ontological continuity) is genuinely Whiteheadian and will force us to modify some ideas.

Now, instead of indicating difficulties, let us search for some conceptual tools that would help to explore our subject-matter. Whitehead introduces a broad set of categories. Some of them may help our purposes. The Creativity One-Many (also called ‘The Category of the Ultimate’) holds a distinct place in the system. It is responsible for the most fundamental one-many rhythm, which is creative. Being creative means that in reality there is no room for repetition, there is no one eternal pattern that is reproduced by incoming generations of entities. Each actual entity, each concrete, acquires its own pattern, which comes from different sources of its “conditioned indetermination.” Because of that, Whitehead also calls this category ‘the principle of novelty’.

The next categories that are useful for us belong to the group named ‘the Categories of Existence’. The first is actual entity. Whitehead calls it by many other names, such as ‘actual occasion,’ ‘event,’ ‘Final Reality,’ or ‘Descartes’ Res Verae’. The actual entities are fundamental, for they

20 Namely forty five (!) categories: eight Categories of Existence, twenty seven Categories of Explanation, nine Categorial Obligations, and the Category of the Ultimate; see: 1926, 20–28. It is important to emphasize that the Whiteheadian sense of the term ‘category’ is different from the Hartmannian one. The former understands categories in a descriptive sense, bringing them closer to Hartmann’s types of being of various sub-kinds (existential, explanatory, categorial). The latter interprets categories in a generative sense as principles of being. For this reason, Mohanty 1957, 146, writes that, “Process and Reality is not an ontology of the real world in the same sense in which Hartmann’s Aufbau and Philosophie der Natur claim to be so.”
are the most “real” forms of being; they “are the final real things of which the world is made up” (1926, 18). They oppose the eternal objects, which are “Pure Potentialities” or “Forms of Definiteness.”

Whitehead calls the process of their instant constitution concrescence (lat. concrescere – to grow together, be formed), and he distinguishes four grades (species) of actual entities. Without going into details, let us enumerate them:

- “actual occasions in so-called “empty space” – the lowest grade;
- “actual occasions which are moments in the life-histories of enduring non-living objects” – electrons or other primitive organisms;
- “actual occasions which are moments in the life-histories of enduring living objects;”
- “actual occasions which are moments in the life-histories of enduring objects with conscious knowledge” (1926, 177–178).

A cursory analysis of the concept of actual entity provides a space to establish some sort of processual stratification. For now, let us just agree to call Whitehead’s actual entities concretes.

The other two categories that need to be introduced are nexus (plural – nexūs) and contrast (1926, 22). The latter is a principle or a mode of synthesis of actual entities. It creates so-called ‘Patterned Entities’. The former expresses the fact that two or more entities are tied together. Whitehead calls it a “particular fact of togetherness among actual entities,” or a “public matter of fact” (1926, 20–22). Although similar, both categories fulfill separate tasks. A nexus provides a ground for the appearance of societies, which constitute a gradation within the natural

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21 Whitehead 1926, 22, writes: “Among these eight categories of existence, actual entities and eternal objects stand out with a certain extreme finality.” Perhaps the categories that are closest to the Hartmannian understanding of categories are Whitehead’s eternal objects. Mohanty 1957, 172–174, explicitly asks and discusses the question of their identity.

22 Discussing the concept of actual entity, Cobb 2008, 16, states: “Whitehead believed that deciding what sorts of entities are truly concrete or actual is a fundamental task for philosophy and one that is quite relevant for physics as well.”

23 A passage can be found in Whitehead 1926, 228, that may suggest a complete synonymy of the two terms. Whitehead, however, refuses such an possibility: “In another sense, a “nexus” falls under the meaning of the term “contrast”; though we shall avoid this application of the term.”
world, whereas a contrast leads to the notion of relation.\textsuperscript{24} Consequently, the more important category for us is that of nexus.

Now the concept of “nexus” will eventually broaden our notion of “concrete.” In this regard, the following comment of Cobb needs to be considered: “What many others call ‘actual entities’, Whitehead calls ‘nexuš’. This is most obvious in relation to philosophies that stay close to ordinary language and treat the objects of everyday experience as actual entities” (Cobb 2008, 27). Whitehead does not do that. His actual entity is the object neither of common sense, nor of scientific knowledge. Only ontology reaches actual entities – any other experience or science deals with nexuš. Following that, we shall use the term ‘concrete’ to refer to both: an actual entity and a nexus. At the ontological ground Whitehead’s category of actual entity shall be equivalent to our concept of concrete. However, if we are also to include a scientific and an everyday experience, then the concept of “concrete” must embrace Whitehead’s ideas of tables, trees, planets, and empty spaces as the nexuš of actual entities.

Finally, one last category is of great interest for us – society. Even if it is not included amongst the categories of existence, it seems to occupy a significant place in establishing the processual concept of stratification. The reason for that is based on an extension of the category of nexus. Whitehead claims that a society is “a nexus of actual entities which are “ordered” among themselves,” adding that it is “more than a set of entities to which the same class-name applies” (1926, 89). Hence, by the addition of an element of order, the concept of “society” takes the investigations at a level higher than the level of actual entities. By ordering a set of actual entities (a nexus), a new creation appears, which is not a mere sum of its components, and which possesses completely new qualities. Cobb states (2008, 28): “Societies endure through time, whereas actual occasions only occur and fade into the past. Accordingly, societies can change location, as individual actual occasions cannot.” Roughly speaking, the concept of society, as a higher-level entity that organizes (socializes) sets of actual entities, is contained in our notion of “layer.”

The actual world – Whitehead says – is “a real incoming of forms into real potentiality, […] incoming of a type of order establishing a cos-

\textsuperscript{24} “A relation can be found in many contrasts; and when it is so found, it is said to relate the things contrasted. […] A relation is a genus of contrasts” (1926, 228–229).
mic epoch” (Timaeus), “incoming of a certain type of social order” (1926, 96). The process of novel creation is a constant incoming of forms (categories) through the real potentiality into actual entities, which are later ordered into societies. Then, a whole hierarchy of societies appears. The following layers are discussed in Section IV of Chapter III: The Order of Nature (1926, 96):

- a society of pure extension;
- a geometrical society;
- an electromagnetic society;
- a wave → an electron → a proton → a molecule;
- an inorganic body;
- a living cell;
- a vegetable → an animal body → …

We see that such a series is more or less equivalent to the layers of nature distinguished by the natural sciences. Obviously, the series does not end with the layer of animal body, but it extends to every higher layers.

Except for the hierarchy of societies, there are also many types of societies, which additionally diversify a quantity of possible ontological layers and involve the assignment of a role to environmental agents. Noting that society “is, for each of its members, an environment with some element of order in it” (1926, 90), Whitehead then provides a following classification of societies:

- structured society – “includes subordinate societies and nexūs with a definite pattern of structural inter-relations” (1926, 99);
- stabilized society – “it can persist through an environment whose relevant parts exhibit that sort of change” (1926, 100);
- specialized society – complexity + stability, “a complex society which is stable provided that the environment exhibits certain features,” “deficient in survival value” (1926, 100–101);
- protected nexus – “‘entirely living’ nexūs do require such protection, if they are to survive” (1926, 103), the theory of the animal body.25

An order is a social creation. It appears within nexūs of actual entities that realize a specified pattern (the category of contrast), and which entities possess a certain reference to their environment. If a society is suf-

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25 Here, Whitehead discusses his idea that “an “entirely living” nexus is not a “society”” (1926, 103). However, it appears that this claim contradicts his previous statement that the hierarchy of societies is composed by “living” societies.
ficiently structured, then the order within it may convert into the hierarchy.

Whitehead maintains that the process of becoming is “a creative advance into novelty” (1926, 28). Such an advance is being achieved by each momentary concrescence, which is “the synthesis of all ingredients with data derived from a complex universe” (1926, 115). Therefore, the synthesis itself becomes creative. It means that actual entities, within each society, do not realize their pattern passively, but creatively. By being more than a set of actual entities, every society is a possible source of novelty. Here we see that the creative synthesis (concrescence) and the novelty it provides, may take place at three different levels:

- actual entity (nexus) → concrete;
- society → layer;
- order → hierarchy.

Let us now discuss them successively.

5.4 Three issues within the concept of the layered world

5.4.1 What is a concrete and what is its relation to categories?

Considering concretes, we have already established one source of their determination that comes from the categories constituting them. According to Hartmann, who combines the Platonic and Aristotelian traditions, the concrete can be seen only in reference to its principles, and vice versa (law 1.1). On the ground of Whitehead’s philosophy, the equivalent for Hartmann’s categories may be understood in two ways: as eternal objects or as a mental poles of actual entities. It is a discussion similar to the one pursued by Hartmann – that seeks to determine whether categories are found in the ideal world, or are present solely within concrete reality. This is, in fact, the question of Whitehead’s Platonism (Mohanty 1957, ch. 2). In short, the conclusion is that there are no principles outside the concrete. Eternal objects determine actual entities viaprehensions, and are incorporated (as feelings) in the very structure of each entity. The process of concrescence has phases, which relate directly to the eternal entities, and hence, “ideal” forms become the

26 Especially, the phases of conceptual and reverted feelings; see: Cobb 2008, 60–62.
essential components of concrete beings. However, such a relation between an actual entity and its principles is obtained individually and creatively for each occasion – it does not repeat one universal pattern, and it leaves a place for novelty.

Hartmann’s ontology seems to correspond with these intuitive principles. The 2.1. law of connectivity (Gesetz der Verbundenheit) states: categories do not determine the concrete in isolation, each by itself, but only in a mutual connection. The categorial determination is not a mere sum of consecutive categorial contributions, but it is a non-additive result of their mutual determinations. The result of such a connection remains indeterminate and unpredictable – it respects novelty, it is creative. A new concrete being, although its structure is based on the reference to categories, cannot be reduced to them. “Emergence would result as self-selection of Potentialities,” as Peruzzi claims (2001, 254). Therefore, we formulate our first thesis:

**Thesis 1:** A concrete is a horizontally emergent entity.²⁷

Now, following Whitehead, we discover another source of concrete determination, which cannot be found on the ground of Hartmann’s ontology. The process of concrescence includes not only the correlation with eternal objects, but primarily, in its first phase, it consists of so-called physical feelings, which are prehensions of other, past actual entities, of other concretes. Thus, process philosophy emphasizes that concretes are nothing without (prehensions of) other concretes.²⁸ The totality of physical feelings is the actual world of a given actual entity, incorporated as its physical pole. Such a type of determination is based on the cate-

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²⁷ The concept of emergence includes three conditions: a) supervenience, b) irreducibility, and c) downward causation. To be horizontal is to occur within one ontological layer, whereas to be vertical is to take place between two ontological layers. In the case described in Thesis 1 a concrete horizontally emerges from categories that determine it. See Peruzzi 2001, Kim 2006, Dziadkowiec 2010.

²⁸ The reference of a concrete being to other concretes constitutes its very essence. As Mohanty 1957, 88, writes: “‘Concrete’ means ‘together’; ‘abstract’ means ‘isolated’, taken out of this togetherness in isolation.” Therefore, there is no concrete in isolation, and its basic determination comes from the influence of other concretes.
gory of real potentiality.\textsuperscript{29} Let us call it the ‘interior environment’ of the concrete.

Finally, a third source of concrete determination is discovered – it comes from the analysis of the category of structured society. Possessing several subordinate societies and nexüs, which follow their individual aims, a structured society provides the pattern that is to be realized by its members. That pattern is constituted out of structural inter-relations and it does not affect the aims of any member as long as members do not violate the structure of a whole. The actual entities within each society constitute the foundation for the concept of layers of social order. The influence of a structured society on its members is an example of downward causation. It is a type of causality that comes from the higher layer ($L_n$) to the concrete at the lower layer ($L_{n-1}$). Thus, we call that type of concrete determination the ‘exterior environment’.

The difference between interior and exterior environments rests upon a level of ontological analysis. While the former concerns the relations amongst concretes within the same layer, the latter describes the downward influence of a higher layer. Both of them complement each other in revealing the material (physical or contentual) side of concrete determination. The categorial determination that exposes the formal (principal) side is the opposite of both. Summing up all of the sources of concrete determination, we obtain the following diagram and a second thesis:

Diagram 5.1: Threefold determination of the concrete

\textsuperscript{29} The doctrine of real potentiality is intrinsically connected with Whitehead’s ontological principle (e.g., 1926, 19, 32, 43) and with the statement that in a constituted actual entity, which falls under our idea of concrete, “there is no element of hypothesis;” see: Mohanty 1957, 140.
Thesis 2: A concrete has a threefold determination: a categorial determination (principles) and a conditioned indetermination of a real concrecence (real potentiality): interior and exterior environments.

5.4.2 What is a layer and what is its relation to concretes?

According to Hartmann, a layer is a separate type of being that can be distinguished from concretes. The adequate statement is found in 2.3. the Law of layer wholeness (Gesetz der Schichtenganzheit): a layer of categories is not a loose multiplicity or a sum, but it is a wholeness, having a sort of priority over its elements. As we already know, the categories and the environment together determine concretes within a given layer. Since the environment is responsible solely for the contents of the concrete, all fundamental characteristics ascribed to these concretes come from the categorial determination. Thus, the set of categories within a certain layer indicates a potential framework for each possible or actual concrete. As Hartmann notices, such a framework is not a mere sum of all categories, but it constitutes a whole. A peculiar bond that conjoins categories, is named by Hartmann ‘categorial coherence’. The relation between them is so strong that a whole layer obtains a priority over its elements. Let us now ask: what does the priority of layer to concretes consist in?

Here we return to Whitehead’s concept of “structured societies.” The creative synthesis of many concretes leads to the emergence of society. If this is a structured society, then it has a pattern and influences its members – concretes and subordinate societies (also called ‘patterned entities’). We notice that a new pattern, introducing structural inter-relations, does not bring any new categories. Therefore, there is no categorial novum within a specified layer. The novelties here are the social order, the hierarchical structure, and its inter-relations that organize many concretes. To answer our question, we conclude that a layer has no categorial or content priority, but a structural one to its concretes.

Having established the general concept of layer and its structural priority over concretes, we are now able to consider the relation between them. Following an analogy with Thesis 1, one may ask whether or not the connection between a layer and its concretes is the emergence relation. There are three conditions to fulfill (see note 28). Firstly, with reference to the issue of the exterior environment, it was stated that the influence of a society upon its members might be considered as a down-
ward causation. The structural priority of a layer expressed by its function in providing a pattern to ordered concretes is a type of horizontal downward causation. Secondly, it is obvious that if there were no concretes, then a layer could never exist. Hence, a layer is existentially dependent on concretes. Moreover, any change within the set of concretes results in an immediate change within a layer.\(^{30}\) In terms of the emergence-relation it is fair to say that a layer supervenes on concretes. Thirdly, considering a pattern provided by a social order of layer, there is no possibility of deriving it from, or explain it by, a mere set of concretes.\(^{31}\) A pattern possessed by a layer constitutes its structural novelty, and establishes its irreducibility to concretes. Having all three conditions fulfilled, and remembering that a layer and its concretes occupy the same grade of hierarchical order, we propose the following statement:

*Thesis 3*: A layer is a horizontally emergent society of concretes, introducing a new pattern on them.

In Thesis 2 the three sources of concrete determination were proposed. Let us now find out, how such a determination looks in the case of the layers. In fact, the issue is quite simple, since the whole variety of determinations is already present on the level of the concrete. Hartmann’s corresponding law is the 1.4. Law of layer determination (*Gesetze der Schichtendetermination*): the categories of a certain ontological layer are sufficient for it – all fundamental moments that are present in each concrete item of that layer are fully determined by categories of this layer. Therefore, a layer takes a totality of its determinations from concretes belonging to it. Such a conclusion includes a statement that there is no direct influence of one layer upon another, or at least that the direct influence stays insignificant and cannot determine the properties of any higher or lower layer. If one layer significantly influences the other, then this is always done through the concretes of the latter and its exterior environment. The conclusion constitutes our next thesis:

\(^{30}\) We refer to the definition of supervenience given by Kim 2006, 548: “Property M supervenes on properties \(N_1, \ldots, N_n\) iff whenever anything possesses \(N_1, \ldots, N_n\), it necessarily possesses M.”

\(^{31}\) Here again, we refer to the corresponding definition of irreducibility as a constitutive part of the emergence relation (Kim 2006, 548): “Property M is not reducible to properties \(N_1, \ldots, N_n\) iff M is not explainable in terms of, predictable on the basis of, or derivable from \(N_1, \ldots, N_n\).”
**Thesis 4:** A layer possesses a type of determination that comes from the concretes belonging to it.

One last remark, considering the structure of layer, needs to be made. Each part of a layer stays in a special connection with the whole. Sharing the pattern of a whole society, every concrete being somehow reflects its structure. Whitehead states that each actual entity reflects the wholeness of the prehended world, it reflects the universe: “The concrescence is an individualization of the whole universe” (1926, 165). Such an individualization is obtained within the process of concrescence, which is a creative synthesis of all possible data from the actual world. “An actual entity is concrete because it is such a particular concrescence of the universe.” (1926, 51) The reflection of the universe in each concrete indicates a feature that we call the ‘holographic (or fractal) structure of a layer’.

A similar relation is introduced by Hartmann in his 2.4. Law of implication (Gesetz der Implikation): each consecutive category contains every other category from the same layer; hence, the wholeness of the layer of categories is repeated in each of its parts. The whole set of categories of a certain layer is given to a concrete through categorial determination. Therefore, all essential moments typical for a particular level of ontological complexity are already present in every concrete belonging on that level. The conclusion, emphasizing the holographic (or fractal) structure of layer, leads to the Thesis 5 that finishes our analysis over the concept of layer:

**Thesis 5:** Each concrete includes the reflection of the whole layer, to which it belongs.

### 5.4.3 What is a hierarchy and how does it organize layers?

In our perspective the hierarchy problem is the problem of inter-layer relations and their order.\(^{32}\) It is a question about a vertical relationship between different levels of the world’s ontological structure. If there

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\(^{32}\) It is important to clearly distinguish an order from a hierarchy. The former would be any aggregation of inter-related entities, while the latter would be any aggregation of entities with a vertical form of dependence between them. Therefore, a hierarchy is just an example of an order.
are well-defined relations between the layers, we would speak about their mutual ordering, about a hierarchy. Thus, the definition of hierarchy includes two components: a set of layers and relations between them.\(^{33}\)

There are at least two separate types of hierarchies that manifest unique and characteristic features. Let us call them the ‘linear hierarchy’ and the ‘tangled hierarchy’.\(^{34}\) The first type of hierarchy has one source of determination at any grade of hierarchical advancement – it possesses no other paths for the system’s evolution. The entities within this type of hierarchy are linear in both senses: they are vertical (between different levels) and horizontal (within one level). They are defined by one separate factor that comes from their categorial determination. The categorial factor becomes the demarcation criterion for the constitution of consecutive ontological levels – whenever one discovers a set of new categories (a categorial \textit{novum}), then one finds a new layer of the hierarchy. Having established a sharp demarcation criterion, the linear hierarchy acquires the feature of discontinuity – the presence of several ontological gaps within the entire structure of the hierarchy. It is an antithesis of being ontologically continuous. At first glance, such a type of hierarchy corresponds to the one proposed by Hartmann.\(^ {35}\)

The second type of hierarchy has a tangled structure. This means that every entity within the hierarchy in question has more than one source of determination in both its vertical and horizontal aspects. Hence, the categorial determination does not solely determine the concrete – environmental agents are required. They provide alternative paths of the system’s evolution, which causes the whole hierarchy to become non-linear. At the same time, the hierarchy acquires the feature of continuity, as there is no sharp distinction between one level and the next. Instead of a categorial \textit{novum}, the intensity of specific categories together with the structure of the whole layer constitutes a demarcation criterion. The multiplicity of possible inter-layer connections leads to

\(^{33}\) However, on the ground of Whitehead’s philosophy, there is another meaning of the term ‘hierarchy’, which refers to eternal objects. For the discussion see Mohanty 1957, 65–74, where the author maintains that “The realm of “eternal objects” can be arranged in a graded hierarchy in so far as relevance to \(\alpha\) [an actual “event” – J.D.] is concerned” (1957, 74).

\(^{34}\) The distinction is introduced after Poli 2006, 718.

\(^{35}\) An interesting, semi-axiomatic formulation of Hartmann’s hierarchy is elaborated by Peruzzi 2001, 239–243. The author calls a resulting theory the \textit{H-stratification}; compare: the concept of \textit{stratalism} in section 4 below.
the question of whether or not a tangled structure is still a hierarchy or already a system. Even if the set of relations present in this structure is richer than the one in a linear hierarchy, we may still observe a clear hierarchical order. Hence, we call it a ‘hierarchy with a tangled structure’. Our assumption, that will be verified later, is that this type of hierarchy corresponds to Whitehead’s scheme.

The following table contains the comparison between the two types of hierarchy:

Table 5.2: Linear and tangled hierarchies

<table>
<thead>
<tr>
<th>Linear hierarchy</th>
<th>Tangled hierarchy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical and horizontal linearity</td>
<td>Vertically and horizontally tangled</td>
</tr>
<tr>
<td>One source of determination</td>
<td>Many sources of determination</td>
</tr>
<tr>
<td>No environmental agents</td>
<td>Environmental agents</td>
</tr>
<tr>
<td>Linearity &amp; discontinuity</td>
<td>Non-linearity &amp; continuity</td>
</tr>
<tr>
<td>Demarcation criterion:</td>
<td>Demarcation criterion:</td>
</tr>
<tr>
<td>categorial novum</td>
<td>intensity and structure</td>
</tr>
<tr>
<td>Hartmann’s hierarchy</td>
<td>Whitehead’s hierarchy</td>
</tr>
</tbody>
</table>

Now, having characterized the two types of hierarchies, let us consider some of the possible inter-layer relations that occur within them. The question is: how does the lower layer influence the higher one? The short answer, if we are to follow consistently Thesis 4, would be: there is no direct influence at all. Thus, the only possibility for explaining the indirect inter-level relations consists in the reference to concretes. In fact, there is no other influence of one layer upon another than through concretes. It was previously emphasized that a layer imposes a structural pattern upon concretes, a social order that has a priority over its elements. Hence, a layer is a society of structured concretes. Consequently, if such a society is to be a base for a higher-level entity, then it needs to follow some other structural pattern that would organize it within a higher structure. A higher layer is not just a collective or distributive set of lower layer concretes, so their relation cannot be purely mereological. The set of possible inter-layer relations is as follows:

- super-formation (Überformung);
- super-position (Überbauung);
supervenience (S) – existential dependency;
irreducibility (IR) – structural novum;
downward causation (DC) – environmental agents;
vertical emergence: S + IR + DC.

According to Hartmann, as we already know, both the first and the second relations are the ones that apply to the real world. The difference between them lies in the level of the hierarchical order to which they relate. The super-formation relation can be found in all phenomena from elementary particles to living organisms, while the super-position relation is present in everything within and above the level of mentality. Such a perspective, although preserving the variety of phenomena, brings an inconsistency to the hierarchy and causes its discontinuity (the appearance of ontological gaps). One strategy that Hartmann follows is to agree that “the type of unity embodied in the world is not that simple” (1975, 79) and to maintain there are two irreducible inter-layer relations that simultaneously govern the whole hierarchy. The other strategy, which we are proposing here, is to look for another relation that would include both Hartmann’s conditions: existential dependency (super-formation) and material (content) independency (super-position) of one level to another.

The relation of vertical emergence is the best candidate for combining both Hartmannian relations. First of all, it includes the supervenience condition, which expresses the idea of existential dependency. Each change at the lower level brings a change at the higher level. In other words, nothing new appears in the higher level entity, if it does not appear also in the lower level entities. Second, vertical emergence underlines the irreducibility of the higher to the lower. It expresses the concept that the new contents, turning up within the higher structure, are not to be predicted or explained in terms of lower level entities. It satisfies the requirement of material independency. Therefore, both intuitions included in Hartmann’s relations are already present in the components of the vertical relation of emergence. Finally, the last condition – downward causation – finds no match within Hartmann’s ontology.36

In our viewpoint top-down causation comes with the concept of “ex-

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36 Peruzzi 2001, 244–245, points out the lack of environmental agents within the Hartmann’s concept of stratification. Unlike our proposition that refers to a processual explanations, he refers to Ludwig von Bertalanffy’s general system theory, calling it “more than a mathematical formulation of H-stratification” (2001, 244).
terior environment,” which is one of the three components of concrete determination (Thesis 2). Determining the concrete, it also determines the whole layer to which it belongs. Hence, downward causation is the indirect type of inter-layer relation that also influences the structure of the whole hierarchy.

This is summarized in the second diagram and the sixth thesis:

**Diagram 5.2: Components of vertical emergence and Hartmann’s relations**

![Diagram](image.jpg)

**Thesis 6:** The hierarchy orders the layers through the relation of vertical emergence.

One may argue against such a proposal, claiming that neither supervenience nor irreducibility is equivalent to Hartmann’s inter-layer relations. Agreeing with that objection, it needs to be emphasized that finding other conceptual tools to re-establish a similarity with Hartmann’s relations is not an issue here. The aim is to explore, following some of Hartmann’s intuitions, whether or not the relation of vertical emergence may be appropriate for the idea of hierarchy as introduced above.

Moreover, the relation in question helps us to decide which type of hierarchy we should deal with. The presence of environmental agents and, hence, of various sources of indirect layer determination, indicates that the adequate type of hierarchy is the tangled one. However, if we are to establish the key elements of each ontological level, then the categorical demarcation criterion – typical for the linear type – will still be in
force. The tangled criteria, intensity and structure, may be considered as complementary to the categorial criterion and be used when we need to conduct a more detailed analysis of a given layer. That leads to an approval of hierarchical continuity where there is no room for ontological gaps. Still, the set of categories is specified for each layer, and there is no continual passage between those belonging to separate levels. What stays continuous is the intensity of their appearance – each category can be more or less present in a certain concrete being. Such a conclusion follows Whitehead’s statement: “It is obvious that a structured society may have more or less ‘life,’ and that there is no absolute gap between ‘living’ and ‘non-living’ societies” (1926, 102). Vertical emergence occurs where the intensity of a specified set of lower level categories reaches its maximum and, thus, establishes foundations for higher level categories.

The last issue that needs to be dealt with is that of Hartmann’s categorial laws concerning the hierarchical structure of layers. There are two pairs of laws that shed more light on the nature of hierarchical order. The first pair includes the 3.1. Law of recurrence (Gesetz der Wiederkehr) and the 3.3. Law of categorial novum (Gesetz des Novums). The former states that lower categories “return” in higher ones as their component moments. The law of recurrence connects the categories of different layers, and so it connects the layers themselves. The latter states that each higher category includes a new moment – a categorial novum, which cannot be derived from lower categories. The law of categorial novum expresses the idea of irreducibility that takes place between consecutive layers and, therefore, disconnects the layers. According to Hartmann, the hierarchical structure is unified and divided at the same time. Both of these aspects are included in the structure of the real world, and the new ontology consequently needs to deal with them: “It is precisely the concern of the new ontology to arrive, uninfluenced by any kind of prejudice, at a well-balanced and carefully defined idea of the relationship of homogeneity and heterogeneity in the multiplicity of ontological strata” (Hartmann 1975, 79).

The second pair of laws includes the 4.1. Law of strength (Gesetz der Stärke) and the 4.4. Law of freedom (Gesetz der Freiheit), which are again complementary to each other.37 The former emphasizes that the higher

37 Hartmann 1975, 88, claims: “Of these laws of dependence, the first and fourth – the law of strength and the law of freedom – stand in a mutual relationship
ontological layers are based on lower ones – lower categories are always stronger than higher ones. With respect to the strength, the lower layer is always stronger than the higher one. On the contrary, the latter law (4.4) underlies that the higher layer always possesses more freedom than the lower one. The law of freedom calls categorial freedom an ‘autonomy in dependence,’ and states that it is possessed by every higher ontological form in reference to ones lower than it. Here again, Hartmann points out there are no better or worse, no “more perfect” or “less perfect” layers. Every ontological level holds its own place in the hierarchy, and is equally needed in respect to the whole. The hierarchy, unifying various simultaneously connected and separate layers, needs to stay bipolar. The bipolarity of hierarchy expresses its twofold constitution, which is caused by a mutual coupling of categorial characteristics such as freedom, strength, dependence and irreducibility.

Both features, the bipolarity and the tangled structure of hierarchy, are included in our final, seventh thesis:

*Thesis 7:* The hierarchy of layers possesses a bipolar and tangled structure, and a continuous character.

5.5 Summary – what is *stratalism*?

The diagram below sums up all the results obtained in the paper. It is a scheme of the tangled hierarchy with its multiple relations. As every scheme it is just a simplification of a possible real situation – the proposed numbers of categories (2) constituting a concrete, of concretes (2) constituting a layer, and the number of layers (4) constituting a hierarchy, are all arbitrary and are not intended to describe any real phenomena. Here, we just find an ontological view that highlights some relations between types of entities at different grades of complexity: from a single category through concretes to the whole hierarchy of layers:

similar to the relationship obtaining among the laws of stratification, the law of recurrence and that of novelty.”
Diagram 5.3: Tangled hierarchy

The diagram represents a very general concept of “the layered structure of the world.” The concept is borrowed from Hartmann’s ontology and from some elements of Whitehead’s process philosophy. We believe that it constitutes the foundation for a new philosophical position, which is sometimes called the theory of ontological levels. Following the Latin etymology, let us call our theory ‘stratalism’. Stratalism is a philosophical position according to which the real world manifests a layered structure, contains separate ontological levels, relations between

38 Explanation of lines and arrows: horizontal lines – a horizontal emergence within the same level; category → category – a categorial dependence expressed by the 3.1. Law of recurrence and the 3.2. Law of modification; concrete → concrete – an interior environment of a concrete, a conditioned indetermination of a real concrescence (real potentiality); layer → concrete (downward) – exterior environment of a concrete, a downward causation of a concrete by a layer; layer → concrete (upwards) – a supervenience, upward causation of a concrete by a layer.
them, and concretes that include separate layers and their categories. The set of essential statements for such a viewpoint was proposed in the paper in the form of seven theses:

*Thesis 1:* A concrete is a horizontally emergent entity.

*Thesis 2:* A concrete possesses a threefold determination: a categorial determination (principles) and a conditioned indetermination of a real concrescence (the real potentiality): interior and exterior environments.

*Thesis 3:* A layer is a horizontally emergent society of concretes, introducing a new pattern on them.

*Thesis 4:* A layer possesses a type of determination that comes from the concretes belonging to it.

*Thesis 5:* Each concrete includes the ‘reflection’ of the whole layer to which it belongs.

*Thesis 6:* The hierarchy orders the layers through the relation of vertical emergence.

*Thesis 7:* The hierarchy of layers possesses a bipolar and ‘tangled’ structure, and a continuous character.

These statements are all open for a deeper elaboration and further development. They are not final conclusions, and may be freely changed after a critical comparison with, for example, the results of scientific research. Nevertheless, the *stratalism* and its set of theses, as introduced above, may find various, broader philosophical applications. Let us just enumerate some obvious examples: the mind-body problem, the problem of the world’s unity (e.g., between monism and pluralism), the problem of substance (e.g., the nature of the concrete), the problem of freedom and determinism (which is treated differently at each level), the ontology of nature (a categorial analysis of natural phenomena), and the elaboration of fundamental categories like process or time. All of these prob-

39 An attempt to solve the mind-body problem by conjoining the relation of supervenience and Hartmann’s ontology is made by Johansson 2001, 195.
lems, and perhaps more, stay open for those willing to explore the ontology of the stratified world.

5.6 References


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