

UNIVERSITY OF HULL

***Towards a New Foundation for Systems Practice:
Grounding Multi-Method Systemic Interventions***

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by

Manuel Pretel-Wilson (BBus, BA, MA, MS)

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“The real voyage of discovery consists not in seeking new landscapes,
but in having new eyes”

Marcel Proust

In Memory of Àngel Ros Bosch (1961-2001)

For developing my capacity to question

And constantly learn about reality

I was truly honoured

Thank you!

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Abstract

My purpose with this PhD has been to provide a new foundation for systems practice in order to ground multi-method systemic interventions. The field of Critical System Thinking (CST), which was established to provide this grounding, finds itself immersed in a crisis called the “paradigm problem”. This has come about because it has sought to integrate different Western epistemologies in order to ground methodological pluralism. In particular, CST has uncritically assumed parallel worlds that speak different languages in its attempt to integrate different systems approaches informed by Western epistemologies that are not ontology-free. Hence, system practice is in need of a new ground to justify the use of different systems methodologies that avoids both a fractured universe and atheoretical pragmatism.

I advance a ‘world-hypothesis’, which is essentially a world-image to explain reality. I have pursued a fascinating journey into systems philosophy and systems science to see the universe with new eyes. The result is a new world image called the One World of causally interdependent systems that competes both with the Common World of linguistic meanings constituted by society through language and with the Natural World of extended objects made of interacting parts. The One World hypothesis questions the authenticity of currently prevailing world-images and points to the possibility of a new age for systems thinking. However, controversially for systems scientists, the implication is that they need to give up on both the part-whole and the holarchy concepts.

Importantly, if the One World hypothesis is to provide new grounds for systems practice and methodological pluralism, the picture of the universe has to be completed with an understanding of how conscious systems operate. Thus, I provide a scientific hypothesis and I postulate education as a future systems methodology to inform systemic interventions in conscious systems. I also encourage systems scientists and systems practitioners to work together to flesh out a multi-method skeleton to organize the field of systems practice. Finally, I propose the next phase of my own research, which will be to develop an educational systems methodology to improve conscious systems.

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Chapter 1

Introduction

“All men by nature desire to know”

Aristotle, *Metaphysics*

My desire with this PhD is to contribute to the field of systems thinking. But what is ‘systems thinking’? Well, to me that wasn’t clear until recently. What was I doing with this PhD? Was it systems philosophy, general system theory (GST), systems science or systems practice? That was the first thing I had to figure out for myself upon entering the broad field of systems thinking (this label being the overarching one, according to Midgley 2003). What I did realize was that there exists a world-view accepted by systems thinkers that I felt attracted by. The universe is not made up of parts that need to be isolated in order to understand how the phenomena in the universe work. The mechanistic view of the universe has been repugnant to me ever since Angel Ros (1961-2001), a philosophy teacher whom I will never forget, introduced me into Democritus’s universe of atoms which aggregated into things and disaggregated into atoms again. This meaningless view of the universe literally gave me a headache when, as a genuine student of philosophy who truly seeks wisdom, I tried to understand La Mettrie’s *Man a Machine* (1747). I remember thinking: “Manuel, you have to try hard to understand what a human being ‘is’, wisdom is difficult as Plato told me in his *Republic* (380 BCE); you need to get out of the cave of shadows to see the sun, but wisdom won’t come in a day since your eyes need to get use to the sun’s fierce brightness”.

Systems thinking, however, seemed to be the sun I was looking for to illuminate the universe beside me. I could now look at the universe in a new light. Things were no longer aggregations that I needed to break down into their original parts in order to understand how they worked. No corks or machines, but systems! Everything surrounding me was systems; nothing but systems... but what were systems? No parts anymore, no atoms in empty space aggregating by chance. Everything seemed to make sense. The whole is more than the sum of its parts;

the whole is made of *interacting* parts - parts that could only belong to wholes. No parts, anymore, but parts interacting in a whole. What a great world-view! I was like a child born anew looking at the whole universe from a different perspective. "For wonder is the feeling of a philosopher, and philosophy begins in wonder", said Socrates in Plato's *Theaetetus* (369 BCE). So the awe I experienced as a child came back to me. These systems I saw everywhere had life for the first time! I'm a part that interacts with other parts, making a system. I wasn't a composite disaggregating into nothing. I was part of a living system which was always regenerating and flourishing. How different was the universe from this new world-view.

I needed to learn more about systems. Like the species discovered by Darwin, systems also evolved becoming more complex over time. Complex systems and self-organizing systems were now my favoured worlds. Capra's *Web of Life* (1996) triggered the last crucial change that brought forth the systems world-view to my eyes. I could no longer go back to the old mechanist world-view. The new science of systems was waiting out there for me to discover. Systems were miraculous creatures, different forms evolved with time and suddenly a new property emerged. Novelty and creativity were encoded in the universe. Wholes were not only made out of interacting parts: new wholes emerged out of the interaction of wholes; higher order wholes from lower order wholes. This was astonishing, and my awe was stimulated more and more. I needed to read everything I could find. This was my new bible and I needed to listen to all the prophets.

Then I realized that systems thinking is also practical. This hit me when I got hold of Meadow's *Thinking in Systems* (2008). I thought, if I could only grasp the structure of a system then I could understand - not predict- its behaviour. That was my new mantra inspired by system dynamics (Forrester 1961, Sterman 2000, Senge 1990). But then I discovered the Santa Fe Institute and its nonlinear dynamical systems emerging out of local interactions between component parts (Lewis 1992). Now I could understand flocking behaviour and potentially any apparent collection of autonomous creatures adapting to their environment. Not only could I understand the emergence of patterns, but I could now understand complexity itself. Finally, I could model systems in computers, making artificial societies emerge from a few local rules given to the agents (Epstein and Axtell

1996). Real human societies were like those computer programs; maybe those local rules were encoded in the human genome.

I couldn't get more excited: parts interacting in wholes; wholes interacting with bigger wholes; new wholes emerging out of the interaction of their component parts; nothing but autonomy, creativity and dynamism- life itself! The story of evolution really attracted me. Evolution originated with the universe itself; bigger planets attracting smaller satellites; planets revolving around bigger stars; galaxies attracted by bigger galaxies... If the small fish was swallowed by the big fish at the cosmic scale, why wouldn't other much smaller scales on our own planet follow the same pattern of cosmic evolution?

This is the world-view that I was attracted to, and seems to me that it guides all systems thinkers, systems scientists and systems practitioners in the systems community. In fact, even if the field of systems thinking is divided down the fault line between systems science and systems practice, it seems that both camps agree on the same world-view of the universe. Maybe some will say that systems are not objective entities that exist 'out there', the concept of 'system' is a world-view that we use to make sense of the universe (Checkland 1981). Others going even further would claim that world-views are constituted by language (Ulrich 1983, Midgley 1992). Nevertheless, systems are viewed as being made of interacting parts no matter whether they are believed to be 'out there' in the universe, given in our perspectives, or embodied in our symbolic world of language. Quite early on, it seemed to me that it didn't really matter which of these systems approaches I embraced because they all agree on the *systems concept*. On this, I was to change my mind.

Well, several years on, this PhD thesis came to be about the story of a different world-hypothesis. I claim that, if we truly want to unite the field of systems thinking, we need to question the prevailing systems-view and see the universe under a new light once again. I situate my argument in the field of Critical Systems Thinking (e.g. Flood and Jackson 1991, Flood and Romm 1996, Midgley 2000, Jackson 2000), as it has long been concerned with the unification of systems thinking as a field (Midgley 1992 a, b, 1996, 2001), and ultimately a successful systemic intervention practice often depends on finding synergies between systems science and system practice (Midgley 2014).

Now I briefly explain the structure of this thesis. As with all theses, it goes without saying that Part One will start with a critical review of the relevant literature in the field of CST. First, I explain how the “paradigm problem” entered CST through Checkland (1981) and Jackson’s (1982, 1991) adoption of Burrell and Morgan’s (1979) sociological paradigms. Second, I will discuss the contributions of CST in grounding multi-method systemic interventions to solve the “paradigm problem” in order to avoid system practice becoming a set of systems methodologies merely for a management toolkit. I’m referring here to a tendency of some authors to resort to atheoretical pragmatism (Hutchinson 1996, Ormerod 1997), which CST denounced in the name of a theoretically informed methodological pluralism. The review continues with the systems concept in CST showing how the concept of system in each systems approach assumes a different pseudo-ontology. Lastly, I enter into the waters of General System Theory (GST) to see what the original founders of that field say about the structure of the universe.

Part Two deals with the research methodology and questions that will guide this inquiry to ground systems practice. Chapter 6 will introduce the hypothetico-inductive method I will use to develop a world-hypothesis that explains the conditions of possibility of actual reality. Indeed, we will see that philosophy, like science, is concerned with reality. Chapter 7 clarifies what I mean by a world-hypothesis and I will advance some criteria to assess the explanatory power of any world-hypothesis, one of which is whether it provides intuitive answers to the perennial problems of philosophy since the Greeks. As we will see, behind those problems there are genuine philosophical questions that need to be addressed by a world-hypothesis. Chapter 8 formulates the secondary research questions that are required to answer my primary research question:

How to ground multi-method systemic interventions in a way that dissolves “the paradigm problem”?

Part Three will flesh out my world-hypothesis. Each chapter in that part will address one of those perennial problems of philosophy which need to be answered in a certain order since all the philosophical questions are interconnected. Chapter 9 addresses metaphysics and introduces four world-images that have dominated in Western thought. Chapter 10 is about ontology and is by far the longest chapter of this thesis. I discuss the structure of the

universe, its ontological levels, their interrelationship, and map the different territories of reality. In the Chapter 11 I tackle epistemology showing that there are other forms of knowledge besides science. Chapter 12 addresses the last philosophical question, the question of thought or knowledge-structure, and provides a new concept of system. After this philosophical journey, Chapter 13 will give us the key criteria to demarcate philosophy from science.

In Part Four, we will be philosophically equipped to start our scientific journey into the nature of causal explanations. Chapter 14 will introduce us to Aristotle's (350 BCE) theory of causes and modern empiricist reactions to it. Chapter 15 is on Kant's (1781, 1787, 1790) theory of causes which, as we will see, postulates a different causal relation from the prevailing concept of causality. That heterodox concept of cause will, in fact, constitute my theory of causes that explains how systems operate. Building on Aristotle and Kant's theories of causality, in Chapter 16 I will provide a different set of causes that apply to all systems in the universe. Lastly, in order to prove that this theory of causes is not mere speculation, I will provide in Chapter 17 several exemplars in systems science explaining how physical, biological and cognitive systems operate. I will argue that those systems scientific theories implicitly assume the existence of my set of causes.

In Part Five of the thesis, I will point to a limitation of the systems sciences, as currently constituted: they do not provide an adequate theory to explain how conscious systems operate, which is crucial for grounding systems practice. Chapter 18 offers Scheler's (1913-1916) theory of social systems as an example of the kind of world-image that currently predominates in the social sciences, considering human systems as intersubjective realities. The discussion of this will lead to my alternative world-hypothesis of the One World of causally interdependent systems uniting the philosophical and the scientific pictures of reality. Chapter 19 on Hartmann's (1933) theory of spiritual systems will provide us with some insights to develop my own theory of conscious systems in Chapter 20.

Finally, Part Six deals with systems practice. I will argue that the complete world-hypothesis that I am offering provides adequate grounds for systems practice and methodological pluralism. In Chapter 21 I recall the proposals that have been put forwards to ground multi-method systemic interventions. I argue that these meta-

pluralist theories that integrate different Western epistemologies assume the “paradigm problem” instead of dissolving it. Moreover, that assumption is only the tip of the iceberg because it results from assuming the “science wars”: the Natural world in natural sciences and the Social world in social sciences. I argue that my world-hypothesis has the potential to dissolve the “paradigm problem”. However, I will reach a conclusion about the panoply of systems methodologies that might appear controversial: most current systems methodologies (with the notable exception of Beer’s, 1985, Viable Systems Model) are not well-founded theoretically, and we therefore need a new research program that brings together systems scientists with systems practitioners to reconstruct our methodological landscape. Thus, methodological pluralism should not lead to satisfaction with the methodologies and methods we already have.

I hope you enjoy the journey as much I did writing and traveling it!

Part One

Critical Review of Contemporary Systems Thinking

Chapter 2

The Paradigm Problem in Critical Systems Thinking (CST)

“They think differently, speak a different language, live in a different world”

Michael Polanyi, 1958

Polanyi’s quotation (above) is very apt to introduce an unsolved problem that has divided the field of Systems Thinking into different paradigms: the hard, soft and critical. Indeed, the prevailing view in systems thinking is that different communities of systems thinkers, “think differently, speak a different language, live in a different world”. Since each community sees a different world, mutual understanding between communities is impossible, thus, paradigms are incommensurable. Paradigms cannot be compared. In other words, “paradigms are mutually exclusive. They offer alternative views of social reality [...] They offer different ways of seeing,” (Burrell and Morgan 1979: 25)

Once the problem has been stated, we need to understand why mutual understanding between communities holding different paradigms is impossible. To do so, we need to cover the history of the paradigm idea in the philosophy of science and that means tracing its origin to the work of Kuhn in *The Structure of Scientific Revolution* (1962) and subsequent developments in *Reflections of My Critics* (1970), the *Postscript* (1970) to the second edition to *The Structure*, *The Road since Structure* (1990) and *Afterwards* (1993). Once we understand why paradigms are incommensurable, according to Kuhn, we will move on to the review how this idea entered the field of CST through Checkland and Jackson who were influenced by the work of Burrell and Morgan’s *Sociological Paradigms* (1979)

Kuhn's Paradigm Idea

What Kuhn set himself to do in *The Structure* (1962) was to explain the role of scientific communities in determining the progress of science. He noticed that scientific revolutions happened after periods of "normal science" where there was agreement between scientists about the problems to be solved and the legitimate methods to solve them. What the community of scientist shared was a common paradigm. At that time Kuhn wasn't very clear about what he meant by paradigm, sometimes claiming a normative meaning saying that paradigms "provide "model problems and solutions for a community of practitioners" (1962: 48) and others a cognitive meaning.

Regarding the second meaning, Kuhn acknowledged

"That distinction between discovery and invention or between fact and theory will, however, immediately prove to be artificial. [...] Assimilating a new sort of fact demands [...] adjustment to theory [...] and [...] until the scientist has learned to see nature in a different way, the new fact is not quite a scientific fact at all (1962: 52-53)

Arguing that the discovery of a new theory happens

"only when all the relevant conceptual categories are prepared in advance [...] That discovery involves an extended, though not necessary long, process of conceptual assimilation. Can we also say that it involves a change of paradigm? To that question, no general answer has yet been given, but in this case at least, the answer must be yes" (Ibid: 55-56)

Kuhn was claiming that a paradigm shift is a conceptual shift, that is, scientific communities see a different world as soon as their conceptual framework changes. In agreement with Kant, he believed that our access to the world is always mediated by concepts; there are no pre-conceptual experiences. Conceptual frameworks are the condition of possibility of experience. However, unlike Kant's conceptual frameworks, those deployed in science change with time and belong to communities not individuals. In short, in *The Structure* the notion of paradigm is closely related to the *shared conceptual categories* that shape what a community of scientists sees.

Kuhn used the notion of paradigm to explain why in the history of science there were times of consensus and times of debate just before or during scientific revolutions. However, despite its originality in explaining scientific progress, this explanation had a mayor negative implication. “The normal-scientific tradition that emerges from the scientific revolution is not only incompatible but often actually incommensurable with that that has gone before” (Ibid: 103).

Indeed, paradigm shifts create a mayor communication barrier between different communities of scientist.

“The inevitable result is what we must call [...] a misunderstanding between two competing schools [...] the proponents of different paradigms practice their trade in different worlds [...] the two groups of scientists see different things when they look from the same point in the same direction” (Ibid: 149-150)

Therefore, Kuhn’s proposal to understand progress in science had a downside: *the problem of incommensurability*. In order to defend himself before the second edition of *The Structure* was published, Kuhn wrote an article call *Reflections on My Critics* (1970). Now, it appeared that the “communication breakdown” between communities of scientists occurred because “in the transition from one theory to the next words change their meaning or condition of applicability in subtle ways (1970: 266). Thus, the only way to decide between different theories was to learn the language of each theory in order to compare the observations. Since each community saw a different world the solution to the problem of incommensurability was that each community needed to master both languages to compare what they each see until they can agree on a common paradigm.

The problem of incommensurability meant that scientific communities were inevitably condemned to “communication breakdowns”, but they could eventually agree if the community belonging to the old paradigm adopted the language of the new paradigm or both communities found a new language. In such situations, both communities would see the same world. A foreign paradigm could be learned in the same way as we learn a foreign language and hence see a foreign world, but once we go back to our native language we see our native world. In summary, the notion of paradigm was transformed from shared

conceptual categories to shared *linguistic terms* that determines what a community of scientists see.

Not entirely convinced by his notion of paradigm, Kuhn revisited it in the *Postscript* (1970) to the second edition of *The Structure*. He distinguished two senses of the term 'paradigm'. On the one hand, a paradigm is a *constellation of beliefs and values* shared by members of a given community. And on the other hand, in keeping with his original meaning, paradigms are *shared exemplars*; that is, "the concrete *puzzle-solutions* which, employed as models or examples, can replace explicit rules as a basis for the solution of the remaining puzzles of normal science" (Ibid: 173).

In addition, regarding the problem of incommensurability, Kuhn now says that participants in the debate should "recognize each other as members of different language communities and then become translators" (Ibid: 202). Moreover, to try to understand each other, they need to isolate those cases in which they seem to disagree "to discover the terms and locutions that, used unproblematically within each community, are nevertheless foci of trouble for inter-group discussions" (Ibid: 202) Eventually, with the help of shared everyday language, "each of them will have learned to translate the other's theory and its consequences into his own language and simultaneously to describe in his language the world to which the theory applies (Ibid: 202). Ideally, that translation could provide the reasons to persuade one participant to convert into the other's paradigm.

However,

"To translate a theory or worldview into one's own language is not to make it one's own. For that one must go native, discover that one is thinking and working in, not simply translating out of, a language that was previously foreign" (Ibid: 204).

Kuhn is saying that despite the effort in trying to understand each other, "neither good reasons nor translation constitute conversion" (Ibid: 204). Both participants will nevertheless live in a different world because "debates over theory-choice cannot be cast in the form that fully resembles logical or mathematical proof" (Ibid: 199). Therefore, to use Popper's words, "rational discussion is thought to be impossible without an established framework" (1976: 54). At the end of the day,

what determines the theory-choice are the shared values of the community which, as we saw, are part of the paradigm.

Twenty years later Kuhn continued developing his ideas about incommensurability in a paper call *The Road since Structure* (1990). His focus is not so much on what communities share but on how they differ, and he identifies certain areas of untranslatability which he calls “lexical taxonomies”. That is, communities disagree because they refer with their lexical taxonomies to different worlds.

To overcome this problem,

“Members of one community can acquire the taxonomy employed by members of another [...] But the process which permits understanding produces bilinguals, not translators (Ibid: 93)”

Kuhn is now rethinking this earlier position, lexical taxonomies cannot be translated into foreign languages because they are not linguistic. Let’s listen to him on this point.

“I might more appropriately speak of concepts than of words. What I have been calling a lexical taxonomy might, that is, better be called a conceptual scheme [...] such taxonomic module I take to be pre-linguistic and possessed by animals” (Ibid: 94)

He concludes that,

“The position I’m developing is a sort of post-Darwinian Kantism. Like the Kantian categories, the lexicon supplies preconditions of possible experience. But lexical categories, unlike their Kantian forebears, can and do change, but with time and with the passage from one community to another” (Ibid: 104)

Finally, in *Afterwards* (1993), Kuhn delves into the members of the lexicon which are ‘natural kinds’ resembling Aristotle’s substances, namely, “things that, between origin and demise, trace a lifetime through space over time” (Ibid: 229). Kuhn seems to be moving from linguistic terms to the conceptual entities that populate the community’s world. Let’s quote him at length.

“If two communities differ in their conceptual vocabularies, their members will describe the world differently and make different generalizations about it. Sometimes such differences can be resolved by importing the concepts of one into the conceptual vocabulary of the other. But if the terms to be imported are kind terms that overlap kind terms already in place, no importation is possible [...] Some of the kinds that populate the worlds of the two communities are then irreconcilably different, and the difference is no longer between descriptions but between the populations described. Is it, in these circumstances, inappropriate to say that the members of the two communities live in different worlds? (Ibid: 233)

This final position on the problem of incommensurability is clear, communities live in a different world not because they speak different languages but because they live in a world populated by different entities. Therefore, since communities don’t observe one and the same world with their eyes, they will never agree on what they see. Communities from different paradigms, thus, live in different irreconcilable worlds.

The following table will help summaries our findings after having traced the development of the paradigm idea in Kuhn’s work. Mutual understanding is only possible if a community of scientists shares the same paradigm otherwise they will live in different worlds because they will see different entities populating their own world. In a sentence, *mutual understanding between different communities belonging to different paradigms is impossible*. Instead, the decision of which paradigm has more explanatory power is a matter of faith and comes from conversion, not persuasion

Kuhn’s Works	Paradigm	Incommensurability
The Structure	Shared problem-solution models Shared conceptual categories	Incompatibility
Reflections	Shared linguistic terms	Translatability
Postscript	Shared beliefs and values	Irrationality
The Road	Shared lexical taxonomy	Untranslatability
Afterwards	Shared ‘natural kinds’	Irreconcilability

Table 1. The Evolution of Kuhn’s concept of Paradigm

Burrell and Morgan's Sociological Paradigms

Following in the wake of Kuhn's (1970) ground breaking work, Burrell and Morgan (1979) tried to come up with a framework to help social scientists locate their work in different traditions of social theory (paradigms). To do so, they first analysed assumptions that different communities made regarding the nature of social science and argued that social scientists can be classified along a *subjective-objective dimension* and a *regulative-radical dimension*. In terms of the subjective-objective dimension, four sets of assumptions were examined: ontological, epistemological, those concerning human nature and methodological. Ontologically speaking, the objective view assumes "the social world as if it were hard, external, objective reality [and the subjective view] stresses the importance of the subjective experience of individuals in the creation of the social world" (1979: 2-3). Epistemologically speaking, the former studies the "relationships and regularities between various elements [and the latter the] understandings of the way in which the individual creates, modifies and interprets the world" (Ibid: 3).

Before we move to the second dimension of their framework (regulative-radical), I think I should say something about the two labels they introduce to classify the objective view, namely, a *realist* ontology and a *positivist* epistemology, since these were later adopted by some critical systems thinkers to frame the paradigm debate in the systems thinking research community. It is also worth mentioning this because it provides an example of the uncritical adoption of Western epistemologies without noticing the ontological commitments made. Realism is not an ontological position per se, since it makes no commitments as to the kinds of entities that populate the universe; all it says is that they are mind-independent, which is an epistemological assumption. However, since it is generally assumed that the universe is material, realism is compatible with any type of material entities; thus, realism commits to *materialism*. In turn, positivism assumes that observation is the method used by science; which is contrasted with anti-positivism, the assumption that interpretation is the method used by the social sciences. Therefore, *interpretivism* in social science is opposed to *positivism* in natural science. It should be clear from this brief analysis that the uses of terminology by Burrell and Morgan (1979) to construct a paradigm classification are quite problematic, and I suggest that this terminology has been taken up by

social, management and systems scientists to the detriment of addressing 'the paradigm problem'.

The second dimension that Burrell and Morgan discuss comes from their analysis of assumptions regarding the nature of society. This is the *regulation-radical change dimension*.

On the one hand,

"we introduce the term 'sociology of regulation' to refer to the writings of theorists who are primarily concerned to provide explanations of society in terms which emphasise its underlying unity and cohesiveness (1979: 17)

On the other hand,

'the 'sociology of radical change' [...] basic concern is to find explanations for the radical change, deep-seated structural conflict, modes of domination and structural contradiction which its theorists see as characterising modern society" (Ibid: 17)

Building a matrix using the two dimensions they identify what they call four sociological paradigms. Basically, "the four paradigms define fundamentally different perspectives for the analysis of social phenomena" (Ibid: 23). Claiming that paradigms are the "very basic meta-theoretical assumptions which underwrite the frame of reference, mode of theorising and *modus operandi* of the social theorists who operate within them" (Ibid: 23). Burrell and Morgan mix together the normative and cognitive meanings that Kuhn originally gave to the term 'paradigm' in *The Structure*. That is, paradigms understood as shared conceptual frameworks and model problems and solutions of a community of scientists.

In addition, they write in a footnote

"We are using the term 'paradigm' in a broader sense than that intended by Kuhn [...] arguing that social theory can be conveniently understood in terms of the co-existence of four distinct and rival paradigms defined by very basic meta-theoretical assumptions in relation to the nature of science and society" (Ibid: 36)

They endorse Kuhn’s paradigm incommensurability:

“the four paradigms are mutually exclusive [...] They offer different ways of seeing. A synthesis is not possible, since in their pure forms they are contradictory, being based on at least one set of opposing meta-theoretical assumptions” (Ibid: 24)

In particular, the four paradigms are incommensurable because they make mutually exclusive assumptions about the nature of the social world. Communities of social scientists see the social world differently because they share different meta-theoretical assumptions.

So which are the mutually exclusive paradigms and the social theories relevant to this thesis?

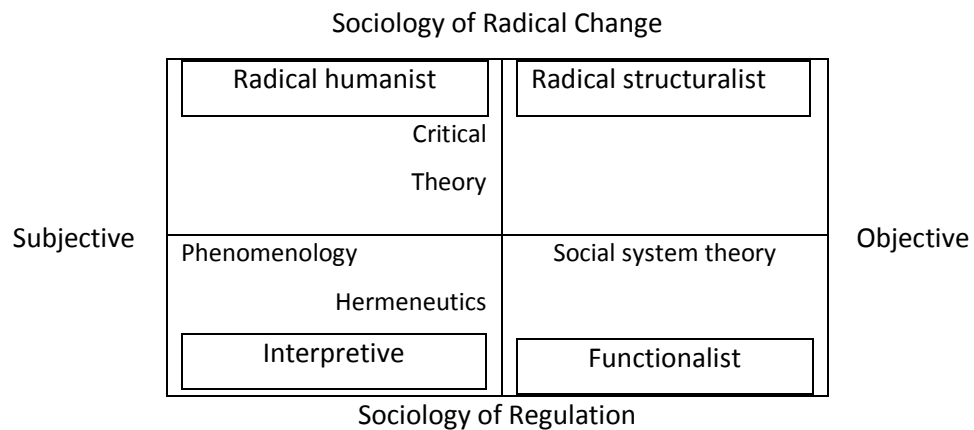


Table 2. Burrell and Morgan’s (1979) Sociological Paradigms

The sociologists in the functionalist paradigm, such as Durkheim and Spencer, see the social world as populated by mechanistic and organismic systems. In contrast, social theorists who belong to the *interpretive paradigm*, such as Dilthey, Weber, Husserl and Schutz, see “social reality [...] as a network of assumptions and intersubjectively shared meanings” (Ibid: 30-31). While functionalists are both realists and positivists, interpretivists are nominalists (anti-realists) and anti-positivists. Furthermore, they separate the functionalist from the radical structuralist paradigm though they seem to share the same ontological and epistemological assumptions (realist, positivist, determinist and nomothetic) and

the same applies to the interpretive and radical humanist paradigms (nominalist, anti-positivist, voluntarist and ideographic).

Moreover, Burrell and Morgan claim that the radical humanists and radical structuralists make the same ontological assumptions about the nature of social reality; namely, its oppressive nature. However, Durkheim (1895), who is placed in the functionalist paradigm, said something similar about social facts. "A category of facts which present very special characteristics: they consist of manners of acting, thinking and feeling external to the individual, which are invested with a coercive power by virtue of which they exercise control over him" (1982: 52). However, according to authors, the main difference between Durkheim and Marx is that the former focuses on social order and the latter on social change. Let's leave aside whether Marx and Durkheim shared the same nature of society and let's proceed now to review how these sociological paradigms influenced the field of CST.

The Three Waves of Systems Thinking and Birth of Critical Systems Thinking (CST)

It is generally accepted that "critical systems thinking grew out of the criticisms launched at proponents of particular systems approaches by advocates of other approaches" (Jackson 2000: 356). So which was the first systems approach to management in the history of systems thinking? According to Checkland (2006), the so-called '*hard*' systems approach started to emerge in the post war period.

"By the end of the 1960s a number of approaches to tackling real-world problematical situations had matured: systems engineering, classic Operational Research, RAND Corporation systems analysis, computer systems analysis, Systems Dynamics, the Viable Systems Model, etc." (Checkland and Poulter 2006: 172)

One of the opponents to the 'hard' approach was, in fact, Checkland himself who gave it that name in contrast to his 'soft' systems approach to management. In trying to justify the social theory behind the Soft System Methodology (SSM) he had developed from his action research practice, he found the work of Burrell and Morgan really appealing. Their analytical framework, showed exactly the

difference between the functionalist paradigm exemplified by the 'hard' approach, and the interpretive paradigm exemplified by his 'soft' approach.

Using the paradigm language, Checkland claimed to have made

"A move from positivism and functionalism (the 'hard' approach) to phenomenology and interpretative sociology (the 'soft' approach)" [...] from an static view of social reality (ignoring worldviews) as 'out-there' [...] to a process view (encompassing worldviews) which sees social reality as something being constructed and reconstructed by human beings in talk and action (Ibid:173)

As the story goes, Checkland together with Ackoff (1981) and Churchman (1979) had established a new paradigm giving rise to a different systems approach in systems thinking. "In this new wave, 'systems' were no longer seen as real world entities, but as constructs to aid understanding. The emphasis was on dialogue, mutual appreciation and the inter-subjective construction of realities" (Midgley 2000: 193).

But the story didn't end here,

"In the late 1970s and early 1980s several critiques of second wave system thinking were launched, primarily on the grounds that the participative methodologies that characterised this wave did not account sufficiently for power relations within interventions, and/or conflicts built into the structure of society" (Midgley 2000: 203)

Based on Burrell and Morgan's typology, Jackson (2003) argued that the 'soft' approach was 'regulative' and didn't aim at 'radical change'.

"Soft systems thinking fails to respond appropriately because of its pluralist bias that consensus, or at least accommodation, between different stakeholders can be achieved" (2003: 23)

There was a need for an 'emancipatory' systems approach to deal with coercive situations which Jackson found in Ulrich's 'critical systems heuristics' (1983). Hence, the late 1980s saw the emergence of the Third Wave in systems thinking which, together with Jackson and Keys's (1984) argument for methodological pluralism, gave birth to Critical Systems Thinking (CST) (Midgley 2000: 204).

But if the three paradigms (hard, soft, and emancipatory) made mutually incompatible assumptions, how could the field of CST resolve the paradigm problem if it was assuming it? In the next chapter, we will explain the story of how different critical systems thinkers attempted to solve the paradigm problem in order to defend methodological pluralism.

Chapter 3

Methodological Pluralism in Critical Systems Thinking (CST)

This chapter will review introduce one of the key features of CST, namely, its aspiration to methodological pluralism. In particular, I focus on the literature that has tried to find theories to ground the use of multiple methodologies in a systemic intervention. Having said this, I would like to suggest that we need to push out the boundaries of the discussion, to use Midgley's (2000) terminology, in order to include not only systems practice but also the systems sciences. However, to my knowledge, only Midgley (1992, 2001, 2014) has gone that way before me. Indeed, the two fields of systems practice and systems sciences have to be intimately related if systems practice wants to avoid atheoretical pragmatism (Jackson 1987; Flood 1989; Midgley 1989). A pragmatist strategy has to be dismissed, as Jackson writes, "because it could not support the development of management science as a discipline. Theory [...] is necessary if we are to understand why particular methods work and other do not" (2000: 366). However, and I'm running ahead of myself a little here, methodological pluralism can only be informed by theoretical pluralism and a not a meta-pluralist theory despite the fact the latter has been the preferred solution by earlier authors to ground methodological pluralism. By a meta-pluralist theory I mean a theoretical framework that integrates multiple epistemologies. In particular, I have identified three solutions of this kind to ground systems practice: (1) System of Systems Methodologies (SOSM) (Jackson and Keys 1984, Jackson 1987, Jackson 1991, Flood and Jackson 1991; Jackson 2000, 2003), (2) The Three Paradigms of Ontological Thought (Midgley 1992, 2000) and (3) The Multidimensional World (Mingers 1997, 2006).

Jackson's System of Systems Methodologies (SOSM)

So let's start with Jackson's first proposal to inform methodological pluralism. Jackson and Keys (1984) and Jackson (1987) realized that problem situations faced by organizations are often complex and involved many people. However, despite

the great variety of available systems methodologies, a framework to guide choice between them in a given organizational context was lacking. Therefore, he decided to develop a tool that would aid managers/consultants in analysing the problem situation and choosing the best systems methodology to tackle the problem at hand. His first step was to develop an ‘ideal-type’ grid of problem situations or problem contexts. Basically, this matrix analysed problem situation according to two dimensions: the *complexity* of the system and the *participants* who had an interest in the problem situation. The problem context could exhibit a higher or lower degree of complexity and a higher or lower degree of discord among participants. While Jackson and Keys (1984) identified four problem contexts, Jackson (1987) later expanded these to six (Table 3).

		PARTICIPANTS		
		UNITARY	PLURALIST	COERCIVE
SYSTEMS	SIMPLE	Simple-Unitary	Simple-Pluralist	Simple-Coercive
	COMPLEX	Complex-Unitary	Complex-Pluralist	Complex-Coercive

Table 3. Jackson’s (2003) ‘ideal-type’ grid of problem contexts

Now that he had typified the ideal-types of problem context, Jackson claimed that this grid could be useful to classify systems methodologies according to the assumptions they make about the nature of the problem situation. Borrowing some labels from Checkland, Hard Systems Thinking assumes that problem contexts are ‘*simple-unitary*’ since the system is viewed as simple enough to model and stakeholders have to agree on what is to be modelled if the approach is going to be useful to all parties. Hence, the system practitioner chooses methods from Operational Research (Churchman and Ackoff 1957¹), Systems Analysis (Quade and Boucher 1968, Opter 1973, Quade et al. 1978, Miser and Quade 1985, 1988), System Dynamics (Jay Forrester early 1960s²) and Systems Engineering (Hall 1962, Jenkins 1969) to tackle technical issues. However, there are other methodologies such as Organizational Cybernetics (Beer 1959, 1966,

¹ First textbook on Operations Research (OR)

² Creation of System Dynamics Group at MIT

1981) and Complexity Theory (Morgan 1997, Stacey 1993, 1996, Wheatley 1992) that belong to the '*complex-unitary*' cell because they assume that problems are far too complex and dynamic to model using the approaches mentioned above, despite participants sharing the same goal.

Soft Systems Thinking methodologies fit with the *pluralist* contexts because they assume that there are multiple perspectives to be modelled, though participants are willing to discuss them and find an acceptable way forward; so systems practitioners need to facilitate the accommodation between different views using Strategic Assumption Surfacing and Testing (SAST) (Mason and Mitroff 1981), Interactive Planning (Ackoff 1981) or Soft Systems Methodology (Checkland 1981).

Finally, emancipatory (Habermas 1971) or postmodern approaches (Derrida 1967) both assume we live in *coercive* contexts because some people are marginalized and hence Critical Systems Heuristics (Ulrich 1983) or Boundary Critique (Ulrich 1996, Midgley 1991, 2000, Yolles 1999, 2000) are used to question the boundaries of the system so all the people affected can be heard to ensure fairness (Table 4). In more complex situations where there is not only conflict or marginalization, but also a confusing diversity of perspectives and interactions, postmodern systems thinking can support people in valuing that diversity (Taket and White 2000).

PARTICIPANTS

		UNITARY	PLURALIST	COERCIVE
SYSTEMS	SIMPLE	HARD SYSTEMS THINKING	SOFT SYSTEMS APPROACHES	EMANCIPATORY SYSTEMS THINKING
	COMPLEX	SYSTEM DYNAMICS ORGANIZATIONAL CYBERNETICS COMPLEXITY THEORY		POSTMODERN SYSTEMS THINKING

Table 4. Jackson's (2003) System of Systems Methodologies (SOSM)

Therefore, the matching between problem contexts and systems methodologies became the Systems of Systems Methodologies (SOSM) that Flood and Jackson (1991) proposed to inform methodology choice and they called it “complementarism” instead of methodological pluralism. Indeed, as acknowledged later by Jackson, “the pluralism embraced by the SOSM is, implicitly, limited to different interventions. The use of different methodologies in the same intervention is not considered” (2000:380). In fact, this line of criticism can be traced back to Midgley (1989, 1990) and Midgley and Floyd (1990). To do justice to Jackson, I would say that besides bringing a variety of systems approaches to management, he advocated for methodological pluralism.

However, the field of CST is far from being united due to the “paradigm³ problem” that his proposal assumed. Indeed, underpinning SOSM there was, at first (Jackson 2000, later abandoned it), a meta-pluralist theory based on Habermas’s theory of “knowledge-constitutive interests” (1972). According to Habermas, human as a species are driven by three fundamental cognitive interests. In undertaking work, humans are driven by a *technical interest* (functionalist paradigm) to predict and control nature, which for Jackson (1991) can be supported by Hard Systems Thinking and Organizational Cybernetics. Moreover, a *practical interest* (interpretive paradigm) in mutual understanding is found in the participant interaction, which can be supported by Soft Systems Thinking. Finally, the *emancipatory interest* to free the human species from oppressive power relations corresponds to the emancipatory and postmodern approach. Indeed, Flood and Jackson believed that,

“By 1991 it was possible to suggest that the concern about paradigm incommensurability could be resolved at the level of human interests and that this established the possibility of the complementary and informed use of different systems rationalities at the theoretical level (Jackson, 1991). As a result, the system of systems methodologies could be rescued from adherence to any one paradigm or rationality” (Jackson 2000: 367)

³ Following Kuhn (1970), Jackson claims that a paradigm refers to “the tradition of research regarded as authoritative by a particular scientific community. It was the set of ideas, assumptions and beliefs that shaped and guided their scientific activity” (Jackson 2003: 37). In particular, based on the work of Burrell and Morgan (1979) and Alvesson and Deetz (1996) he identifies four sociological paradigms.

Several criticisms of this have been put forward. Midgley (1989, 1990, 1996) doesn't believe that this meta-pluralist theory is meta-paradigmatic because it makes paradigmatic assumptions (most notably adherence to the theory of knowledge constitutive interests) that are not compatible with other systems paradigms. This is the so-called *problem of incommensurability* (Mingers and Brocklesby 1996). Likewise, Mingers (1997) thinks it is contradictory to have "a higher level position that accepts incompatible assumptions in lower-level paradigms and yet apparently makes no ontological or epistemological presuppositions of its own" (1997: 411). According to Midgley "this leaves us in need of a *new ontological or epistemological theory to underpin the practice of methodological pluralism*" (my emphasis) (Midgley 1996: 21). Mingers believes there is a way forward: "Midgley (1989a,b) argues, and I would agree, that it is more coherent to see critical systems in fact as a new paradigm of its own- one that subsumes within it the other sub-paradigms. This would allow the competing assumptions to be reconciled within some wider framework" (Mingers 1997: 411).

Before moving on to the next proposal, I would like to mention that Flood and Jackson (1991) developed a meta-methodology called Total Systems Intervention (TSI) to help practitioners choose between methodologies. This built an infrastructure around the System of Systems Methodologies (SOSM) consisting of three phases of activity: creativity, choice and implementation. In the first phase, they advise practitioners to use different metaphors from Morgan (1986) to enhance creativity when analysing the problem situation. In the second phase, they map the metaphors to the SOSM as the preferred method (Figure 3), to guide the choice or combination of systems methodologies. Indeed, they believe that their TSI now justifies the choice of different methodologies in the same intervention, since it is possible to have a "dominant and dependent methodology chosen for use" (2003: 287) derived from a dominant and dependent metaphor identified in the creativity phase. In other words, they believe that TSI grounds methodological pluralism (Table 5)

	UNITARY	PLURALIST	COERCIVE
SIMPLE	MACHINE	COALITION	P R I S O N
	ORGANISM		
COMPLEX	NEURO-CYBERNETIC	CULTURE	

Table 5. Flood and Jackson’s (1991) Metaphors mapped onto SOSM

In my view, this attempt to ground methodological pluralism on metaphors, or “ways of seeing” the organizational world, was a move towards a pseudo-ontology since those metaphors are just images, perspectives, lenses or ways of framing organizations. The theory of metaphors doesn’t make any claims about reality. That is, in using metaphors or frames to understand the context situation, they are not committing to any ontology as to how the organizational world ‘is’. On the contrary, “a frame is a mental model — a set of ideas and assumptions — that you carry in your head to help you understand and negotiate a particular “territory”” (Bolman and Deal 2008: 11).

Midgley’s Three Paradigms of Ontological Thought

Let’s now turn to Midgley’s solution to the problem of grounding methodological pluralism. Unlike the pseudo-ontology behind the TSI, Midgley (1992 a, b) is more explicit in saying that systems science needs to expand its ontological equation to embrace, besides the natural world, the social world and the internal worlds of individuals. “We need to develop an adequate vision of *ontology* to make sense of this inclusion” (1992: 149). “If systems scientists are to deal adequately with complexity, they will have to look at [...] complex interrelationships among these forms of complexity” (1992: 144). However, this ontological complexity is not what it seems at first sight.

For Midgley,

“ontology is, most basically concerned with *discourses* about reality [...] ontology consists of *statements and arguments* about reality [...] An adequate ontology will inevitably be based on language” (1992: 155).

Indeed, according to him, ontology is about truth claims derived from language.

To support this argument, he draws on the work of Habermas (1976, 1984) claiming that the “three worlds” (natural, social and personal (internal)) are derived from the structure of language. Indeed, “there are implicit validity statements inherent in any sentence intended for communication”, namely, “*truth* statements, *rightness* statements, and statements about an *individual's subjectivity* (1992: 157-158). And he relates those statements to the three different worlds: truth statements are about the natural world, rightness statements are about the social world and statements about an individual's subjectivity are about the internal world. It seems to me that that Midgley (1992) is saying that the human world is constituted by language. Indeed, reflecting on his work, he wrote that “in 1992, I argued that ontology is, mostly concerned with *discourses* about reality”. (2000: 72). This reminds me of Wittgenstein's famous aphorism: “The limits of my language mean the limits of my world” (1922: 5.6). On the contrary, I believe ontology is more than a ‘discourse’ about reality. For the time being, however, let's postpone the discussion about the nature of reality and continue with Midgley's proposal.

Moreover, Midgley links Habermas's “three worlds” to “three paradigms of ontological thought” (1992:155): realism, idealism and normative construction (later in 2000 he preferred to call it social constructionism). Yet, to my understanding these are epistemological “paradigms” with ontological consequences, since being is reduced to knowledge. Basically, instead of dealing with the question of being up front, they are assuming different kinds of relationships between the mind and the world. Realism says that the world is independent from the mind; idealism, that there is no mind-independent world “out there”; and social constructionism, that the “world” is an intersubjective construct constituted by language.

Anyway, Midgley's proposition is that "Habermas's ontology appears to bring the essential ingredients of our three paradigms of ontological thought (object relations, normative forces, and subjectivity) together in a new paradigm" (1992: 158). That is, Midgley claims that Habermas's ontology can subsume essential elements of the other 'ontological' paradigms. Moreover, unlike Jackson who reduces paradigms to the social world, arguing that "organizations are social systems" (2003:38), this ontology also includes the natural and the internal world.

"Reality is constituted by objective phenomena ("objects", "systems" and "relations"), many subjectivities, and power (expressed in the evolution and use of normative rules). All three [...] are absolutely and intrinsically interdependent (1992 a: 160).

Midgley was, in fact, advocating an ontology for the systems sciences instead of accepting the traditional split between the natural and the social sciences. I could not agree more with the spirit of his proposal. We need an ontology that doesn't split the universe into artificial boundaries. However, I'm not sure whether Midgley really discovered the boundaries of reality or maybe just the boundaries of language. I do believe that reality has its own boundaries independent of our language. We will talk more about the ontological levels of reality in Chapter 10 (Section 5).

So how is this meta-pluralist theory that subsumes different epistemologies related to methodological pluralism? Well, Midgley discovers different methodologies that are, in fact, pursuing the same ideals behind the "three worlds". Instead of cognitive interests like Jackson, "what we find when we begin to look at methodology is that different research methods emphasize the use of [the] ideals of truth, rightness, and subjective understanding" (1992:163). In addition, each set of methods gives priority to one kind of statement, and it downplays others, implying that all "three worlds" are interconnected and need to be addressed together (Table 6)

Three Paradigms of Ontological Thought	Ideals	Research Methods ⁴
Realism	Truth	Hard Systems Methods (positivist)
Social Constructivism	Rightness	Soft Systems Methods (Interpretive and emancipatory)
Idealism	Subjective understanding	Cognitive mapping and Personal Construct Theory

Table 6. Midgley's (1992) Three Paradigms of Ontological Thought

Again, I like the spirit of this proposal because he asks the systems scientist to embrace multiple research methods in order to address complex issues. We cannot limit ourselves to the use of one set of methods to address one of those "worlds" to the exclusion of others. Since all those "three worlds" are interconnected, "methodological pluralism (which helps us deal with ontological complexity) will actually be essential to the continued legitimacy of systems science" (1992:168). However, I'm not sure that his interdependent "worlds" which make up the ontological structure of the universe, are actually the natural, social and individual worlds. Moreover, the fact that those "worlds" that Midgley claims are identifiable through an analysis of the structure of *language says nothing about the structure of the universe*. Hence, it is questionable whether Midgley does more than advance a linguistic ontology. Besides, in my opinion, it is difficult to imagine how the interdependence between "worlds" can take place between "ontological statements" (Midgley 1992).

Now, what can we say about this meta-pluralist theory to underpin methodological pluralism? Unlike Jackson, Midgley (1992) claims that his meta-pluralist theory is not meta-paradigmatic since it makes its own paradigmatic assumptions about the three worlds which others might disagree with. Yet, even if we are explicit about the philosophical assumptions in a theory it can still be meta-paradigmatic if it subsumes different paradigms under an overarching paradigm. Yes, it is a more sophisticated form of meta-pluralist theory than

⁴ In a footnote Midgley confesses that "the "split" among positivistic, interpretive, and emancipatory systems methods has been inherited from the work of Jackson (1987a)" (1992:163)

Jackson's (1991), because Midgely integrated three epistemologies rather than only two. That is, Midgley's framework integrated realism, hermeneutics and idealism whereas Jackson's only realism ("functionalist paradigm") and hermeneutics ("interpretive paradigms"). Though both theories were based on Habermas, Jackson derived the two epistemologies from the cognitive interests and Midgley the three epistemologies from the structure of language. Therefore, the charge of being meta-paradigmatic was unavoidable given that they both assumed the "paradigm problem" and wanted to resolve it with a meta-pluralist theory. Then there is also the problematic of confusing epistemologies with ontologies which comes from deriving ontology from epistemology in modern philosophy. In fact, the theory of the "three worlds" is a good example of this: it doesn't make any ontological assumption as to how the universe 'is' since it reduces the "world" to the structure of language, but the structure of language says nothing about the structure of the universe.

Before we move on to Mingers, I would like to devote some space to one particular element that Midgley brings into the discussion of methodological pluralism: namely, theoretical pluralism. In his 1992 paper, he seems to suggest that his theory is pluralist because it subsumes the "ontological statements" embodied in the "three paradigms of ontological thought". In particular, Midgley claims that his theory is compatible with the realist theories of Popper (1972) and Bhaskar (1986), the idealist theories of Berkeley (1710) and Kant (1787) and the normative constructionist theories of Foucault (1980) and Habermas (1984). Later in his 2000 book, in a Foucauldian move, he drops the "three worlds" theory on the grounds that "what appears to be an inherent property of language is actually a reflection of the history of Western intellectual thought" (2000: 215). Basically, the "three worlds" theory assumes that the three 'fundamental' claims are three Western discourses. Therefore, those "ontological statements" are no longer derived from the universal structure of language. However, although he gives up those "ontological statements", Midgley isn't ready to give up the "three paradigms of ontological thought" that host those theories. Indeed, the new meta-pluralist theory that rescues those theories is a "process philosophy":

"Process philosophy therefore allows us to talk about a real world, social construction and subjective understanding without

contradicting ourselves (2000:90)... [Moreover], “process philosophy can provide the grounds for a new theoretical pluralism” (2000:98)

The last claim results from his nuanced process philosophy that avoids giving priority to any of the boundary judgements assumed by those theories. This is consistent with Midgley’s ‘Creative Design of Methods’ (Midgley 1990, 1997a,b, 2000) which recommends starting an intervention with a critique of boundary judgement before choosing the most appropriate theories and methods. However, as I said earlier, those ‘three ontological paradigms of thought’ that host those theories are, in fact, the epistemological “paradigms” that dominate Western thought. To use an idiomatic expression, Midgley is afraid of throwing the ‘babies” out with the bathwater’. Moreover, I’m not sure whether he has given up the ontological primacy of language with the analytical primacy of boundary judgements.

Mingers’s Multidimensional World

Another critical systems thinker that, like Midgley, also drew on the three worlds argument a few years later was Mingers (1997), albeit with some differences. So what does his meta-pluralist theory offer to ground methodological pluralism? Mingers argues that CST is lacking a framework to operationalize multi-paradigm multimethodology. That is, a framework to combine methodologies from different paradigms in the same intervention. “[CST] has generally been more concerned with the selection of methodologies than their combination” (1997: 408). Hence, he develops a framework for combining together different methodologies based mainly on Habermas’s ‘three worlds’ and Bhaskar’s critical realism.

As we have seen, according to Habermas (1976, 1984) when analysing our communicative actions, we find implicit in our utterances three types of claims that refer to three worlds: the natural, the social and the personal worlds. These claims come from the universal structure of language, thereby giving ontological primacy to language. However, loyal to the philosophy of critical realism (Bhaskar 1978), Mingers wants distance himself from theories that deny any pre-linguistic access to the world — especially interpretivism (though I think he meant phenomenology). Yet, he, like Midgley, concludes that our experience of the

world is always mediated by language. In particular, observations are always concept-dependent or theory-laden. But, at the same time, he makes a strong claim, like critical realists, that there is an independently existing world beyond human thoughts. Critical realism avoids both the extreme forms of positivism (empiricism) which claim that what exists is simply what can be observed and the extreme forms of interpretism (and social constructivism) which deny the existence of an external reality. Critical realism identifies an essential mistake that those two approaches make: namely, the epistemic fallacy.

“The essential mistake is in reducing the ontological domain of existence to the epistemological domain of knowledge—statements about being (i.e., what exists) are translated into ones about our (human) knowledge or experience of being” (2006: 21)

In other words, both approaches reduce ontology to epistemology; what exists to what can be experienced. In contrast, critical realism differentiates between the intransitive domain of ontology and the transitive domain of knowledge, thus avoiding the epistemic fallacy.

Mingers considers critical realism a philosophy of science, such as positivism and interpretivism, but claims that unlike those epistemologies, “critical realism- [is] a way of resolving or dissolving most of these issues, and providing a consistent and coherent underpinning philosophy for management science” (2006:14).

Therefore, Mingers does not believe that Habermas’s ‘Three Worlds’ are derived from the structure of language. Indeed, “the material world is outside and independent of human beings. It existed before us and would exist whether or not we did” (1997: 10). Moreover, in explaining how the social and personal worlds came about, “from this material world, through processes of evolution, linguistically endowed humans have developed, capable of communication and self-reflection” (Ibid: 11). This reminds me of Popper’s evolutionary explanation of how World 3 (human products) emerged from World 2 (human mind) with the emergence of the human language. In other words, it seems to me that Mingers claims that both the personal world emerged from the material world and the social world emerged from the personal world with the emergence of human language.

Anyhow, “the personal world is the world of our own individual thoughts, emotions, feelings, experiences and beliefs” (1997:11). And the social world “consists of a complex multi-layering of language, meaning, social practices, rules and resources, that both enable and constrains our actions, and is reproduced through them” (1997:11). However, Mingers wants to make clear “that these distinctions are purely analytical, there are not three separate ontological worlds, nor are they independent from each other” (1997: 422).

So what is our relationship with the ‘Three Worlds’? “Our relationship to [the material] world is one of external *observation*” (1997:10). Our relationship with the personal world is that we *experience* it and with the social world is that we *participate in* it. But how do the ‘Three Worlds’ interact? We can shape the material world, but it constrains us with its natural laws; we can express our personal world and the social world can appreciate this; and we can shape the social world but, similarly, its social structures, like the natural world, constrain us. It is in the interaction between the personal and the social world where the contradictions start to appear. Indeed, consistent with critical realism, Mingers (2006) claims that the social world has underling social structures with causal powers that belong to the intransitive domain. On the one hand, social structures are mind-independent, but on the other hand, Mingers claims that

“Social structures do not exist independently of the activities they govern, or, put another way, they exist only in their effects or occurrences. Social structures enable social activities and through that activity are themselves reproduced or transformed. Thus, they are themselves the result of social activity. In contrast, the laws of the natural world are not affected by their own operation” (2006: 25)

He adds,

“Social structures do not exist independently of the agents conceptions of what they are doing. Thus agency always requires some degree of interpretation and understanding of the meaning of the actions undertaken, although this does not imply that agents cannot be mistaken, and it does not require that they be fully aware of the consequences of their activity. In contrast, natural phenomena are independent of our conceptions of them” (2006: 25)

It seems to me that Mingers is claiming that social structures belong to both the intransitive domain of ontology and the transitive domain of knowledge. This reminds me of Searle's distinction between 'brute facts' and 'institutional facts'. Whereas "institutional facts [such as money or marriage] exist only because of our subjective attitudes" [brute facts such as mountains and volcanoes] are ontologically objective, in the sense that their existence does not depend on anybody's subjective experiences" (2010: 18). Therefore, institutional facts are not ontologically objective since money, for instance, does not get its actual powers from the coins, but from the powers we have attributed to those coins through the use of language. In short, money is not a mind-independent social structure with intrinsic powers. However, social structures of critical realism seem to be ontologically objective, instead of ontologically subjective like Searle's institutional facts.

Or maybe the social structures of critical realism are closer to Durkheim's social facts, which are independent existing realities external to the individual, "invested with a coercive power by virtue of which they exercise control over him" (1982: 45). But how can social structures be both mind-independent and mind-dependent realities? I would say that if social structures depend on the agent's thoughts, as critical realism claims, they don't have an independent existence. Therefore, they are not ontologically objective, to use Searle's terms. But if the social world has underlying social structures with intrinsic causal powers, they can't depend on our thoughts. There is a clear ambivalence about what a social structure is, we can't have Searle and Durkheim together, social structures either have or don't have mind-independent powers. Full stop!

What is interesting about critical realism is that it wants to claim for itself all the kind of entities advocated by other epistemologies, such as material things (realism), subjective experiences (phenomenology), linguistic meanings (hermeneutics), but finds it difficult to incorporate social structures without falling into contradictions. Or maybe I'm wrong and social structures are linguistic meanings after all? Indeed, the following quotation from Mingers confirms this. "[The social world] consist of a complex multi-layering of language, meaning, social practices, rules and resources that both enables and constrains our actions, and is reproduced through them" (1997: 11). But surely, if the social structures are linguistic meanings, they should belong to the transitive domain of

epistemology instead of to the intransitive domain of ontology. Clearly, Mingers is confusing realism with hermeneutics, two radically different epistemologies.

Now that we have all the elements of Mingers’s ontology, how does it ground methodological pluralism?

“Any real-world situation into which we are intervening or researching will be a complex interaction of substantively different elements. There will be aspects that are relatively hard and observer-independent, particularly material and physical processes, that we can observe and model. There will be aspects that are socially constituted, dependent on particular cultures, social practices, languages, and power structures, that we must come to share and participate in. Finally, there will be aspects that are individual such as beliefs, values, fears, and emotions that we must try to express and understand” (1997: 11).

Indeed, a systemic intervention should address the ‘Multidimensional World’ embodied in a “real-world situation” using methodologies from different paradigms. To observe the hard elements of the material world we would use the Hard Methods embedded in the *positivist paradigm*; to understand the soft elements of the social and personal worlds, the Soft Methods embedded in the *interpretivist paradigm* are required; and to question the power structures underlying the social world, it is better to use the emancipatory methods embedded in the *critical paradigm* (Table 7)

Multidimensional World	Systems Methods	Paradigms
Material	Hard Systems Methods	Positivist
Personal (individual)	Soft Systems Methods	Interpretivist
Social	Soft Systems Methods Critical Systems Heuristics (CSH)	Interpretivist Critical

Table 7. Minger’s (1997) Multidimensional World

Therefore, Mingers believes that multi-paradigm multimethodology interventions are now philosophically justified. Critical realism offers a new paradigm that subsumes other paradigms without being meta-paradigmatic since critical realism has its own paradigmatic assumptions. However, as I have shown, critical realism is not a meta-pluralist theory that integrates different epistemologies but one of the already included epistemologies. Therefore, the meta-theory is not critical realism but the 'Three Worlds'. However, an acute observer may have realized that 'Three Worlds' held by Midgley (1992) and Mingers (1997) are not isomorphic since one of them is different from the other, because the internal world (idealism) is different from the individual world (phenomenology). They might look the same at first sight because both authors use the world 'personal world' to refer to two different epistemologies, namely, idealism (Midgley) and phenomenology (Mingers). Furthermore, unlike Midgley's meta-theory of the 'Three Worlds' or 'process philosophy', Mingers's subparadigms don't match the material, social and personal (subjective) worlds. Finally, ironically, though critical realism claims to have avoided the epistemic fallacy, the multidimensional framework has reduced ontology to epistemology by subsuming different epistemologies.

Yet, it will deny this, insisting that we live in a stratified universe made of emerging structures (material or social) with causal powers which generate the actual events in the universe. However, do subjective experiences belong to the Real? In other words, does the personal (individual) world have causal powers? Or do only material (natural world) and social (social world) structures have causal powers? Let me explain this further. If material objects (realism), subjective experiences (phenomenology) and linguistic meanings (hermeneutics) all belong to the Real, then all those ontological entities have to be structures with causal powers, according to critical realism. Anyway, I don't believe that Minger's version of critical realism offers a serious "world" to ground methodological pluralism.

In summary, what we have seen from this critical review is that Jackson's (1991) use of the theory of 'knowledge-constitutive interests'; Midgley's (1992) use of the theory of 'Three Worlds', Midgley's (2000) 'Process Philosophy'; and Mingers's theory of 'Multidimensional World' all provide unsatisfactory grounds for methodological pluralism.

However, if instead of reviewing individual authors, we looked at the 'Three Waves' (Midgley 2003) in systems thinking that lead to the field of CST, which is the prevailing reading of contemporary systems thinking, a different picture emerges. First, Hard Systems Thinking clearly embraces a materialist ontology and a realist epistemology, which is termed pejoratively 'positivism' (Jackson 1991). Second, Soft Systems Thinking favours a subjective ontology and a phenomenological or hermeneutical epistemology. Finally, with the appearance on the scene of Critical System Heuristics (CSH) and Boundary Critique, several authors in the field of CST proposed different theories to integrate Hard, Soft and Critical Methods that assumed a problem that had no resolution: "the paradigm problem". Hence, the failure of the three meta-pluralist solutions we have discussed to ground methodological pluralism is not surprising, since it is impossible to combine the implicit ontologies behind those epistemologies. Therefore, any meta-pluralist theory to ground multi-method systemic interventions based on mutually incompatible ontologies is doomed to failure.

Indeed, what has been unnoticed in this debate is that the "paradigm problem" is the consequence of having reduced ontology to epistemology which has generated four mutually incompatible ontologies depicting parallel worlds that speak different languages (Diagram 1):

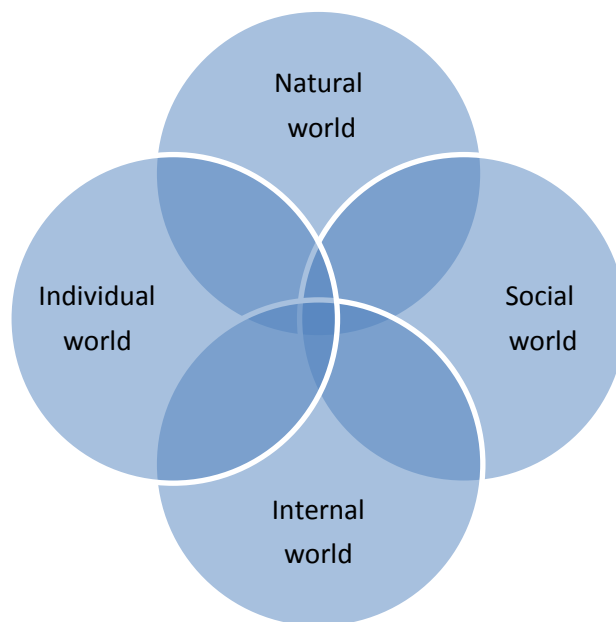


Diagram 1. Mutually Incompatible Worlds

In order to dissolve this sterile debate, we need to question two related dualisms:

- 1) The Subject-Object Dualism, exemplified by Descartes' *Meditations of First Philosophy* (1641)
- 2) The Self-Other Dualism, exemplified by Husserl's *Cartesian Meditations* (1931)

Read in this way, the above mentioned ontologies resulted from assuming those dualisms implicit in Western epistemologies.

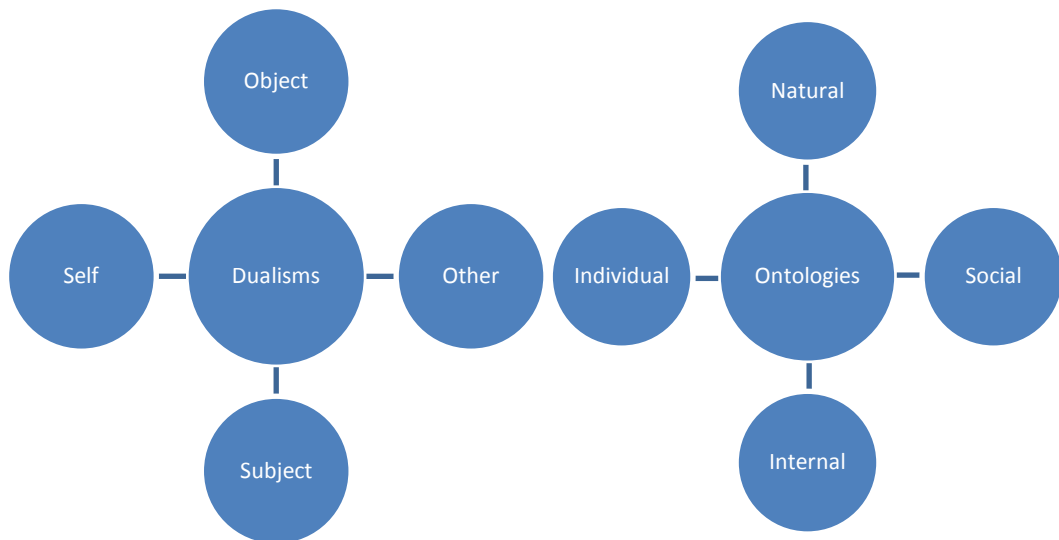


Diagram 2. Mapping between Dualisms and Ontologies

So far, we have reviewed the different proposals that have been put forward to ground methodological pluralism which are basically different solutions to “the paradigm problem”. Those proposals have tried to offer theoretical frameworks for the practice of combining together in the same intervention different methodologies that assumed or came from different paradigms. Basically, the preferred solution has been to offer a meta-pluralist theory to inform methodological pluralism. But none have managed to overcome the “paradigm problem”. On the contrary, I think they are in fact assuming the “problem of incommensurability”. We have also seen the Gordian knot comes from the impossibility of integrating the implicit ontologies behind Western epistemologies.

Indeed, as will be argued in the next chapter,

the field of CST can be read as an attempt to subsume different Western epistemologies which inevitably resulted in the “paradigm problem”, since epistemologies are not ontology-free.

However, before I present my preferred solution to underpin methodological pluralism which dissolves the paradigm problem, we need to bring into the picture the main character of our story: ‘systems’. So far, we have assumed that systemic interventions are about the implementation of systems methodologies to improve ‘systems’, regardless of how we define improvement which can also be problematic (Midgley 1996). But what are ‘systems’ according to CST? It goes without saying that we cannot expect to improve a ‘system’ unless we understand what a ‘system’ *is*. This means that we will continue our journey discussing the concept of system in the field of systems thinking.

Chapter 4

The System Concept in Critical System Thinking (CST)

As a first approximation before we discuss what a 'system' means in CST, in looking at the works of Midgley and Mingers we already notice a marked contrast between their ontologies, even though they both draw up on Habermas's (1976, 1984) theory of "Three Worlds". Whereas Midgley leans towards hermeneutics, emphasizing the role of language in constituting the "Three Worlds", Mingers advocates for a realist "multidimensional world" with its causal powers which is largely independent of our thoughts about it. Thus, the apparent similarity between the two uses of "Three Worlds" hides a fundamental disagreement about what a system 'is'. Mingers believes that 'systems' are objective entities with causal powers, but for Midgley 'systems' are intersubjective world-views. Whereas Mingers stays close to the systems thinking tradition associated with the First Wave in believing that "systems" are out there in the world, Midgley is more loyal the precursor of the Third Wave, Ulrich.

Systems as Objective Entities

In tracing the genesis of systems approaches to management, Jackson tell us that,

"It was not until the late 1940s and early 1950s, however, with the publication of Wiener's work on cybernetics (1948) and von Bertalanffy's on "general system theory" (1950, 1968), that it began to take on the form of a discipline [...] By 1970 there was considerable agreement about how the notion of system should be understood and applied" (2000:2)

Indeed, both GST and cybernetics believed that systems are *objective entities* that existed 'out there' in the natural world. For Bertalanffy (1950), a system is an entity that exchanges matter and energy with its external environment to maintain its existence; thus, he called them open systems. And for Wiener (1948), a system is an entity with an internal environment that uses information to pursue a given goal in the face of external disturbances; thus, cybernetic systems

are self-regulated systems. However, Miller's living systems theory (1978), sought to combine both approaches saying that systems are open systems that process both matter-energy and information. Therefore, the First Wave in systems thinking adopted the notion of a system as a mind-independent entity and applied methodologies such as Systems Engineering (SE) or Operations Research (OR) to solve real-world situations.

Systems as Subjective World-Views

“During the 1970s and 1980s, however, traditional systems thinking became subject to increasing criticism [...] This was read by many as an attack on the systems idea itself” (Ibid:3)

Indeed, in 1981, Checkland dissatisfied with traditional OR, proposed his Soft Systems Methodology (SSM) in order to distance himself with what he termed 'hard systems methodologies'. As we saw in the previous chapter, according to Checkland, Hard System Methods are underpinned by the functionalist paradigm in social theory, assuming a picture of individuals and organizations as *goal seeking* and *optimizing*. For Checkland, however, this approach wasn't wrong per se, but it was just “a special case, perfectly adequate in certain circumstances but less general than the social theory behind the 'soft' outlook” (2007: 172). “The notion of seeking objectives was subsumed in the broader concept of *sustaining relationships*. This contains goal seeking as a special case [...] similarly, the notion of engineering an optimum outcome was subsumed in the broader concept of *learning*, which itself contains optimizing as a special case” (2007: 173).

However, besides subsuming the human instrumental rationality, Checkland believes he was making a much bigger shift:

“It is a move from positivism and functionalism (the 'hard' approach) to phenomenology and interpretive sociology (the 'soft' approach) [...] to move away from a static view of social reality (ignoring worldviews) as something 'out there' which can be studied objectively by an outside observer as if social reality were similar to natural phenomena, to a process view (encompassing worldviews)” (2007: 173-174).

In other places, he describes this move as a “shift of systemicity (or ‘systemness’) from the world to the process of inquiry into the world” (2000: 17). Yet, despite his emphasis on social theory, it is clear to me that he was making an epistemological shift, jumping from realism to an epistemology which stands closer to phenomenology than to hermeneutics. In so doing, Checkland was in fact also making an ontological shift, jumping from “systems” as mind-independent things to “systems” as subjective world-views. For him “systems” are subjective world-views we use to make sense of the world.

However, he wasn’t the first to introduce the phenomenological approach to systems thinking but he managed to put it into practice with his SSM. The forerunner (even before Churchman 1968) was Boulding with a book he published called *The Image* (1956). However, it was Vickers’s (1968) work, in particular, his concept of appreciative system that had a major influence on Checkland.

“Systems are thus *tools of understanding* devised by human minds for understanding situations, including situations in which human beings appear as constituents. They are not *arbitrary constructs*. They must include the minimum number of relationships needed to constitute the situation which is to be understood. But this is defined by its relevance to the *concerns* of some human minds” (Vickers 1983:17)

Indeed, appreciative systems were subjective world-views that needed to model, not an independent existing reality, but the main concerns of the people involved in a problem situation. Therefore, the Second Wave wasn’t against modelling per se, something very established in the First Wave, but they denied that conceptual models represented an existing reality. Instead, models needed to capture people’s views about the problems faced by organizations.

Systems as Mental Representations

Similarly, a second wave was also experienced by cybernetics, moving away from the old cybernetics of Wiener (1948) to the new cybernetics advocated by von Foerster (1979). In a speech given in 1979 to the American Society for Cybernetics, he told his audience: “the cybernetics of observed systems we may

consider to be the first-order cybernetics; while second-order cybernetics is the cybernetics of observing systems” (von Foerster 2003: 285). As with SSM, the “new” cybernetics wasn’t dismissing the “old” cybernetics but subsuming it instead. The observed system was missing the observing system. Von Foerster traced this insight back to Maturana (1970) and named the following proposition after him:

“Anything said is said by an observer” (Ibid: 284)

Immediately after, he derived a corollary which he named after himself:

“Anything said is said to an observer” (Ibid: 284)

In other words, in order for an observer to say something to another observer *language* is required. To me this is important, since “Von Forester is frequently described as one of the founders of the constructivist approach to philosophy- the view that there is no independent reality, only our understanding of the world which we construct individually and may not match with that of any other individual” (Ramage and Shipp 2009: 181). However, as it is clear from these two propositions, language doesn’t precede observation, that is, our observations are not mediated by language. Moreover, as the observer is always an individual observer it cannot be claimed that this approach is related to hermeneutics. The world we perceive, according to von Forester, is not a social or intersubjective “reality”, but a mental reality. More emphatically, the *world is only a world for an observer* because there is no mind-independent world beyond our observations. There is no world ‘out-there’ but only a world inside a mind. Therefore, there is no system ‘out-there’ but only an observed system inside the mind of the observing system. This means reducing the world to our perceptions. In philosophical terms, *to be is to be perceived*, to use Berkeley’s (1710) famous principle. Epistemologically, this position clearly *idealism*. In addition, idealism differs also from phenomenology, since “systems” for the latter are subjective world-views that help us make sense and deal with the world we encounter, so the world is still there. Indeed, for phenomenology, the world is a correlative of the mind. However, for idealism, the world is reduced to our mental representations. So, strictly speaking, we cannot talk about the world as is commonly assumed, since the world is a mental representation. Or to use Schopenhauer’s (1818/1819)

famous quotation: “the world is my representation”. That is, a system is a mental representation.

What I want to say is that we cannot generalize and say that there was a jump from positivism to interpretivism. Rather, from what we have seen in the Second Wave there was a jump from realism to phenomenology in the case of Checkland, and a jump from realism to idealism or anti-realism in the case of second-order cybernetics. Furthermore, the jump from a realist epistemology to an interpretivist or hermeneutical epistemology happened, in fact, in the Third Wave of systems thinking, as I will now argue.

Before we move on to the Third Wave, where does its forerunner fit in, epistemologically speaking? Midgley was right in asserting that “Churchman is an idealist” (2000: 150). Indeed, in making judgement about the boundaries of a system,

“A key part of this judgement process is the *Weltanschauung* (world-view) of the person making the judgement, a concept Churchman (1971), introduced into systems thinking from the philosophy of Immanuel Kant and was later to be drawn upon by a number of others” (Ramage and Shipp 2009: 133)

The world, as such, independent of our thoughts, does not exist. He stresses this point in his book *Design of Inquiring Systems* (1971), when he makes his preliminary statement about what a design *is*. Basically, a design is a mental representation in the designing mind that does not represent a mind-independent reality. The “system” that we aim to design or that we perceive is a mental representation. However, Churchman does say that behind a world-view there are implicit value judgements that need to be acknowledged, indeed, but “the system design problem of central importance is to decide how large the system is, i.e., its boundaries and environment” (Churchman 1971: 7). In other words, the crucial design problem is what relevant “world-views” need to be included in the design of systems; that is, what empirical content or representations hosted in people’s minds are required. Indeed, a world-view, as the term implies, is a perceived or observed “reality” in people’s minds, that is, a mental reality. Hence, Churchman was holding to an idealist epistemology.

Systems as Intersubjective World-Views

In turn, Midgley was also right in the following part of the same assertion, “and Ulrich is a social constructionist”, which is another label for hermeneutics which claims that reality is socially constituted by language, and on the same page, in pointing out that his “epistemology [stresses] the primacy of language and dialogue” (2000:150). Accordingly, to cite one of founding fathers of Hermeneutics:

“The human experience of the world is linguistic in nature [...] it is always human- i.e., verbally constituted- world that presents itself to us [...] *a language-view is a world-view*” (Gadamer 2006: 440)

Let me cite now some of Ulrich’s work:

“When we refer to a ‘problem situation’ or to any kind of ‘real-world’ circumstances, it should be clear that we always mean to refer to the *perceived* situation or circumstances as *appreciated through a reference system* of underpinning boundary judgements” (2005: 5).

Indeed, the reference system that he mentions is a social world-view. Thus, unlike Churchman, the world-view is no longer an empirical content in our mind, but a social world-view constituted by language. Moreover, that reference system has two aspects according to Ulrich: empirical and normative. In addition, when we question boundary judgements, through boundary critique, we are in fact questioning both judgements of fact (observations) and judgments of value (evaluations) that are mutually connected boundary judgements. According to Ulrich, if a boundary critique is effective in questioning the reference system or the social world-view will be modified, since they are one and the same thing. We can change the prevailing ‘system’ by questioning the boundary judgements of those people defining the system.

The following table summarises our findings so far:

Epistemologies	Pseudo-ontologies	Systems	Systems Thinkers
Realism	Natural World	Objective entities	Bertalanffy, Wiener, Miller
Phenomenology	Individual World	Subjective world-views	Boulding, Vickers, Checkland,
Idealism	Internal World	Mental representations	Maturana, von Foerster, Churchman
Hermeneutics	Social World	Intersubjective world-views	Midgley and Ulrich

Table 8. Pseudo-ontologies underpinning Critical Systems Thinking

At this point, I believe my previous statement is well supported:

“The field of CST can be read as an attempt to subsume different Western epistemologies which inevitably resulted in the “paradigm problem”, since epistemologies are not ontology-free”

After finishing the critical review of contemporary systems thinking, I see a different picture from the prevailing history of the Three Waves leading to CST (Midgley 2003). In the case of the Second Wave, we have seen two parallel reactions to the realist school. On the one hand, according to the phenomenologists, “systems” are no longer seen as objective entities, but instead as subjective world-views to make sense of the individual world. On the other hand, for idealists, “systems” don’t live anymore in a world ‘out-there’, independent of our mind, but in an internal world as mental representations. And the last reaction, exemplified by hermeneutics, however, wasn’t against realism per se but rather against phenomenology, questioning that we can have unmediated subjective world-views, since world-views are intersubjective world-views constituted by language.

Therefore, this picture questions the prevailing view that “critical system thinking grew out of the criticisms launched at proponents of particular system approaches by advocates of other approaches” (Jackson 2000: 356). Moreover, I

am going to suggest that the use of 'hard', 'soft' and 'emancipatory' approaches by Jackson (1991) to describe the history of systems thinking is misleading. If we take applied systems thinking as a guide based on the seminal works in systems approaches, the *history of contemporary systems thinking parallels the history of Western Thought*: realism (Churchman and Ackoff 1957⁵, Jay Forrester early 1960s⁶), idealism (Churchman 1971, Stafford Beer 1972, Ackoff 1974), phenomenology (Checkland 1981) and hermeneutics (Ulrich 1983, Midgley 1991). In short, *the assumed history of contemporary systems thinking is not a history of paradigm shifts leading to CST but of the integration of different epistemological shifts leading to a fractured world*. Before each systems school lived in a different world but now CST lives in four parallel realities. Whereas the realist school saw a natural world populated by objective entities, the idealist school saw only mental representations in the internal world. Alternatively, while for phenomenologist school the individual world was a correlate of the individual mind, for the hermeneutic school the social world is constituted by language.

Moreover, besides a fractured world, what I see in this history of epistemological shifts is a world that has lost its beings. We started with a universe populated by mind-independent beings (realism) which became mental representations (idealism), but eventually disappeared with the rise of subjective world-views and intersubjective world-views. We started with an ontologically full universe and ended up with an ontologically empty world. No beings can be said to occupy the universe anymore, all that remains is a common world of linguistic meanings. So, in a sense, it is also a *history of ontological extinctions*.

Despite its critical awareness regarding methodological pluralism, CST has taken for granted the dualism embodied in Western epistemologies and, in doing so, has assumed the "paradigm problem". Indeed, in order to dissolve the Gordian knot, the discussion has to be properly framed. The traditional debate between realism and idealism is, in fact, a debate about what is prior, the Subject or the Object? Conversely, the famous debate between phenomenology and hermeneutics, Husserl versus Heidegger, is about what is prior, the Self or the Other? Therefore, if we want to dissolve the "paradigm problem" assumed by CST we shouldn't

⁵ First textbook on Operations Research (OR)

⁶ Creation of System Dynamics Group at MIT

epistemology to dictate our ontology, as has been the case in modern philosophy since Descartes (1641).

More worrying to me is that taken together those dualisms picture a fragmented world: the natural world, the internal world, the individual world and the social world. But are those the “real” boundaries of reality? Is reality fragmented between the Natural World and the Social World? Or maybe, as Midgley (1992) used to believe, the universal structure of language dictates these boundaries? On the contrary, *reality has its own boundaries*. Full stop! We cannot give up on the question of reality assuming it’s a product of language; otherwise we will be inevitably assuming an artificially fragmented world. So let me try and face the challenge.

I know that many people don’t like to listen to words such as ontology, even less metaphysics, since it sounds like speculative philosophy or pseudo-science, to say the least. But philosophical challenges need to be framed in philosophical terms. Therefore, whether we like it or not, we should be asking:

What are the ontological levels of reality or the boundaries of reality?

I think that challenge was timidly taken up by GST with its concept of the hierarchy of systems, an idea reminiscent of a conception of the universe that prevailed, as Lovejoy reminds us,

“through the Middle Ages and down to the late eighteenth century [...] the conception of the universe as a "Great Chain of Being composed of an immense, or [...] of an infinite, number of links ranging in hierarchical order from the meagerest kind of existents, which barely escape nonexistence, through "every possible" grade up to the ens perfectissimum" (1936:59).

Chapter 5

The Hierarchy of Systems in General System Theory (GST)

So what are the ontological levels assumed by the field of systems thinking? I believe that this review will bring us nearer to the boundaries of reality and to understanding *what a human systems 'is'*. Again, it goes without saying that we cannot expect to improve a human system unless we understand *what a human systems is*. In other words, we cannot intervene in human systems pretending as *if they are ...* mechanical systems (machines), biological systems (open system, autopoietic or living system), neural systems (brains), social systems (cultures), political systems (jungles), discourses (knowledge regimes) or you name it... Would we take our children to a psychologist that uses analogies or metaphors as useful tools to treat his or her patients, as Flood and Jackson (1991) recommended? Certainly not, unless we agreed on what a human system is and how it operates before we carry out a systemic intervention. But before we understand ourselves, we need to understand the boundaries of the world we live in.

Therefore, in the following sections we will discuss the assumed boundaries of reality according to GST. So far we have seen that humans systems live mutually incompatible worlds with contradictory boundaries (Midgley 1992, Mingers 1997) because modern Western epistemology has dictated our ontology, the root cause of the "paradigm problem". The authors I have chosen are the assumed founding fathers of GST, though Bogdanov (1912-1917) published his work in Russia before Bertalanffy (1950). However, in the trilogy I have chosen (Bertalanffy, Miller and Boulding) we see the development of a line of thought that starts with the idea of a hierarchy of system and finishes with an assumed structure of the universe.

Bertalanffy's Hierarchy of Open Systems

Chronologically, our first systems theorist in the GST saga is von Bertalanffy, generally credited for having founded the field and established most of its aims. In

particular, maybe due to the influence of the Circle of Vienna, the ideal of the unity of science and, connected to this, the need of a new discipline called *General System Theory*,

“Its subject matter is the formulation and derivation of those principles which are valid for “systems in general” (1950: 139)

Indeed, von Bertalanffy believed that structural similarities existed in the systems studied by different disciplines, which he called “isomorphies”, and GST was a science devoted to “the discovery of the principles of organization at its various levels” (Bertalanffy 1968: 12)

Moreover, he saw a basic feature at every level of organization of a biological organism, namely, they are *open systems*. In comparing them to closed systems, he wrote that “we call a system closed if no materials enter or leave it. It is open if there is inflow and outflow, and therefore change of the component materials” (1950: 155)

But he also believed that we could find open systems elsewhere (not just biological organisms) such as in the field of physics. “Conventional physics and physical chemistry dealt with closed systems, and only in recent years has theory been expanded to include irreversible processes, open systems, and states of disequilibrium” (1968: 32). Indeed, the physical chemist Prigogine (1973) discovered dissipative structures, dynamic structures that were thermodynamically open systems.

We can only guess how pervasive open systems happen to be, reaching beyond the biological level into the physical level and even into the sociological level. Von Bertalanffy believed that there was “a hierarchy of open systems maintaining itself in steady state due to inherent system conditions” (1951: 37). Therefore, open systems that included the physical level, seemed to be arranged into a hierarchy of levels of organization. Those levels of organization are a first approximation of the boundaries of reality or, as I would prefer to call them, ontological levels of reality. So, let us listen to his view on this crucial question:

“Reality [...] appears as a tremendous hierarchical order of organized entities, leading, in a superposition of many levels, from physical and chemical to biological and sociological systems. Unity of

Science is granted, not by a utopian reduction of all sciences to physics and chemistry, but by the structural uniformities of the different levels of reality” (1950: 164)

In other words, the “Unity of Science” will be fulfilled, according to Bertalanffy, once GST finds the structural uniformities of the different levels of reality. But taking his own words in the interrogative form, “it seems legitimate to ask for a theory, not of systems of more or less special kind, but of universal principles applying to systems in general”(1968:32)? Although a full argument will be provided in Chapter 10, I will claim that contrary to Bertalanffy is more legitimate to see every level of reality as having its own principles and, thus, that there are no universal principles that apply to all levels of organization in the universe. Why do I claim this? Because, as we will see, it is illegitimate to transfer principles from one level of reality, say the biological to the physical, for instance. If my argument stands, the consequence is that the ideal of the unity of science would be impossible, and hence, GST as a discipline would fail, since “isomorphies” would be a chimera. Before running ahead of myself, let me proceed with our next system theorist in the saga of GST.

Miller’s Hierarchy of Living Systems

Our next contributor, Miller, would really pursue that ideal of the unity of science making all the efforts to find those structural uniformities embodied in living systems. Unlike Bertalanffy who considered cybernetics to be different from GST, Miller would try to combine them into a single theory that focused on a single level of reality, namely, life. According to him, ‘Living Systems’ is a special theory and not a GST which covers all the levels of reality. However, Millers’ theory is so expansive that it covers many if not most levels of reality and, therefore, can be considered a general system theory with limitations. So let’s start with his understanding of the difference between cybernetics and GST.

“In the cybernetic model, “organisms are viewed as a special class of machines that operate on engineering principles, particularly controlled by negative feedback. In contrast, GST is “an integrated view of nature that regards the universe as a concrete system

composed of a hierarchy of levels of different types of smaller systems” (Miller 1992: 9-11).

In trying to integrate the differences, Miller would claim that GST

“deal[s] with reality as an integrated hierarchy of organizations of matter and energy. [In particular], living systems discussed here exist in space and are made of matter and energy organized by information” (1978: 1)

Therefore, living systems integrates cybernetics in a special theory that is identical to Bertalanffy’s idea of a hierarchy of levels of organization.

And after a huge effort of synthesis, he came up with a “total of twenty subsystems that he considered essential for any living system, divided into three groups on the basis of whether they were responsible for the transfer of matter-energy, transfer of information, or both” (Hammond 2003: 165). In particular, drawing from Gerard (1958), another credited founder of GST, which believed that “higher levels of integration were dependent upon the subordination of the lower levels” (Hammond 2003: 151), Miller identified seven levels of organization in living systems. (Diagram 3)

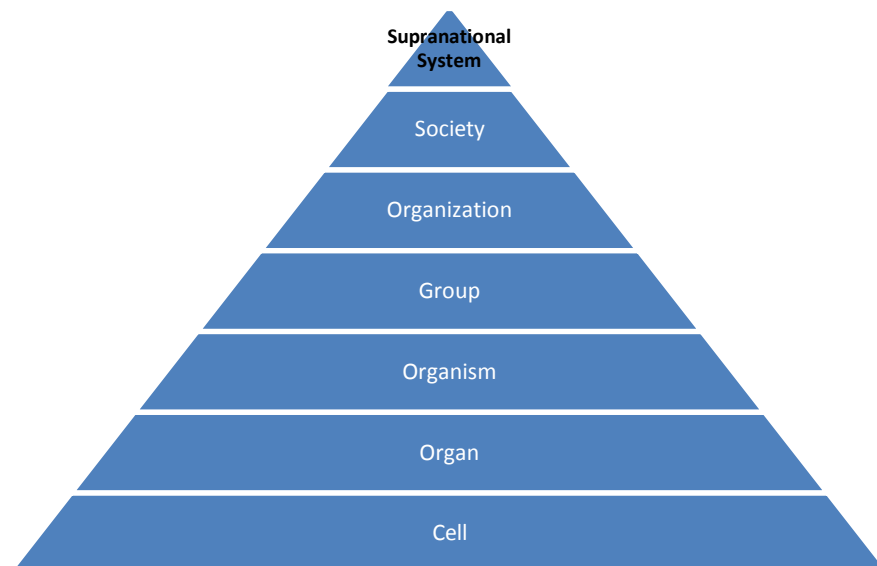


Diagram 3. Miller’s Hierarchy of Living Systems

Besides crossing the boundary from living systems to human systems, what is interesting is the role of the *decider*, one of the critical subsystems in every living system.

“Decider: receives information inputs from all other subsystems, transmits them to information outputs for guidance, coordination, and control of the system’ (Hammond 2003: 182)

Since subsystems are part of living systems, Miller seems to be saying that in every living organism there is one part that controls the whole system, which reminds me of how the brain, a part of the body, is said to control the whole body.

Moreover, for Miller “a *system* is a set of interacting units with relationships among them [...] the units (subsystems, components, parts, or members) of these systems are also concrete systems” (1978: 11-12). Thus, “the universe contains a hierarchy of systems each higher *level* system being composed of systems of lower levels” (1978: 20). In other words, the universe forms a hierarchy of higher level wholes than can be divided into lower level wholes which ‘are’ parts of higher wholes. In turn, lower wholes have parts which ‘are’ in turn wholes made of further parts. In short, *systems are divisible in nature*. However, does the universe contain wholes made of interacting parts? Or are systems, in fact, indivisible unities? That is something we will also need to discuss in this PhD. thesis.

Moreover, “the more complex systems at higher levels manifest characteristics, more than the sum of the characteristics of the units, not observed at lower levels. These characteristics have been called “emergents”” (1978: 25). Hence, systems are not just divisible into, but also emerge out of, lower levels systems, according to Miller. Something new emerges at the higher levels which cannot be reduced to lower levels: the classical *emergent properties* in systems theory. Life emerges out of matter, Mind out of biological organisms, and Society out of “symbolic animals”, to use Cassirer’s (1944) conception of humans. Is Life, Mind and Society, or reality more broadly, “an integrated hierarchy of organizations of matter and energy organized by information” (1978:1), as Miller claimed? I strongly disagree with the view that plants, animals and humans emerge out of the increasing complexity of matter through evolution and in Chapter 10 I will

provide an argument for why this is flawed. Are we really nothing more than a higher complex whole of matter and energy organized by information? I think we need something better than the degree of complexity of a system to understand the structure of the universe. And I will argue that that something is not the levels of organization of a system but ontological levels of reality. Let's see if we have some hope in finding something alike in the work of our next candidate.

Boulding's Systems Hierarchy

Boulding is generally credited as having been the first to introduce the concept of systems hierarchy. But I also don't think I am wrong, if I credit him for having introduced theoretical pluralisms into systems thinking with his concept of the "spectrum" of theories, which he believed to be compatible with GST:

"Two possible approaches to the organization of general systems theory suggest themselves, which are to be thought of as complementary rather than competitive [...] The first approach is to look over the empirical universe and to pick out certain general *phenomena* which are found in many different disciplines [...] The second approach is to arrange the empirical fields in a hierarchy of complexity of organization of their "individual" or unit of behaviour, and to try to develop a level of abstraction appropriate to each" (1956: 200)

However, I claim that theoretical pluralism in systems sciences is at odds with GST, if it is meant to be a single meta-theory for systems in general or, as Bertalanffy put it, "a logical-mathematical discipline, which is in itself purely formal, but is applicable to all sciences concerned with systems" (1950: 139). Furthermore, theoretical pluralism contradicts the ideal of the unity of science, since there cannot be a single meta-theory that integrates all systems sciences because there are no universal principles that apply to all systems in general. However, Boulding was more compromising and believed that the two approaches were "two roads each of which is worth exploring" (1956: 200).

Anyhow, similarly to Miller, he went on to propose a “system of systems” in which “each individual is thought of as consisting of a structure or complex of individuals of the order immediately below it” (Ibid: 201).

So what did the hierarchy of systems look like? Was it a hierarchy of ontological levels? Well, yes and no, yes but not quite. Instead of the seven levels of organization identified by Gerard (1958) and Miller (1978), the system of systems consisted of nine levels and “each level incorporates all those below it (my emphasis)” (Ibid: 207). Although I wouldn’t consider some of his levels as systems per se, I think this hierarchy of systems is close to what we are looking for since it seems to assume a structure of the universe.

Levels	Systems/properties	Ontological Levels
(i) Framework	Static structures	Physical
(ii) Clockwork	Dynamic system	
(iii) Thermostat	Cybernetic system	
(iv) Cell	Open system (“self-maintaining”)	Biological
(v) Plant	Specialization (“division of labor”)	
(vi) Animal	Information processing (“image”)	Cognitive
(vii) Human	Self-consciousness	Social
(viii) Social Organization	Symbolic image	
(ix) Transcendental	“the ultimates and absolutes and the inescapable unknowables”	

Table 2. Summary of Boulding’s (1956) Skeleton of Science assuming Ontological Levels

However, I should mention that Boulding was at pains to distinguish the human level from the social level, since the symbolic universe is common to both.

At the human level, “self-consciousness [is] probably bound up with the phenomenon of language and symbolism” (Ibid: 205).

Yet,

“Because of the vital importance for the individual man of symbolic images and behavior based on them it is not easy to separate clearly the level of the individual human organism from the next level, that of social organizations. [...] So essential is the symbolic image in human behaviour that one suspects that a truly isolated man would not be “human” [...] Nevertheless it is convenient for some purposes to distinguish the individual human as a system from the social systems which surround him, and in this sense social organizations may be said to constitute another level of organization” (Ibid: 205).

Moreover, in considering the social organization,

“The unit of such systems is not perhaps the person, the individual human as such-but the “role”- that part of the person which is concerned with the organization or situation in question, and it is tempting to define social organization, or almost any social system, as a set of roles tied together with channels of communication” (Ibid: 205).

Finally,

“Perhaps one of the most valuable uses of the above scheme is to prevent us from accepting as final a level of theoretical analysis which is below the level of the empirical world which we are investigating. Because, in a sense, each level incorporates all those below it, much valuable information and insights can be obtained by applying low-level systems to high-level subject matter. Thus most of the theoretical schemes of the social sciences are still at level (ii), just rising now to (iii), although the subject matter clearly involves level (viii)” (Ibid: 207).

Exactly, Boulding is saying here something important. Since higher level incorporate lower levels, lower systems provide relevant but not exclusive knowledge of how higher systems operate. This means that we cannot reduce a scientific theory of human systems, for instance, to a scientific theory of physical systems. Clearly, Boulding was advocating for theoretical pluralism in systems science. I will argue the same in Chapter 17 of this thesis.

I will finish with the opening question of this chapter:

So what are the ontological levels assumed by the field of systems thinking?

Have we found the boundaries of reality we set out to discover? Are Boulding's implicitly assumed levels the ontological levels of reality? That is, the physical, biological, cognitive and social worlds? Moreover, was he on the right track when he assumed that our common world was about symbolic universe? We will answer the question about the structure of the universe in Chapter 10 and provide a theory about us in Chapter 20, but before that I have to introduce the research methodology I will follow to answer this and other research questions.

Part Two

**Research Methodology and Research
Question**

Chapter 6

The Hypothetico-Inductive Method

“Epistemology, taken by itself, cannot be a fundamental philosophy as the transcendental model of argument has always tacitly assumed. Rather, it itself needs an ontological foundation”

Nicolai Hartmann, *New Ways of Ontology* (1953: 19)

The above quotation from Hartmann reminds us that epistemology depends on ontology and, thus, we cannot derive ontology from epistemology and even less from multiple epistemologies. However, modern philosophy following Descartes’s footsteps has done otherwise. Unfortunately, this procedure of philosophical inquiry has produced a set of pseudo-ontologies embedded in Western epistemologies that taken together picture mutually incompatible worlds that speak different languages.

And this is why I claim the following:

“The field of CST can be read as an attempt to subsume different Western epistemologies which inevitably resulted in the “paradigm problem”, since epistemologies are not ontology-free”

To reiterate my point, I claim that modern and contemporary philosophy have reduced ontology to epistemology and that the incompatible pseudo-ontologies result from assuming the dualisms embodied in Western epistemologies. Therefore, if we want to avoid perpetuating the “paradigm problem” that pervades the field of CST, we need to ground multi-method systemic interventions on a new ground. Otherwise, we will have to accept the artificially fragmented world that resulted from assuming the implicit dualisms embodied in Western epistemologies: the Subject-Object and the Self-Other dualisms.

So how do we go about finding the ground for multi-method systemic interventions? Certainly not letting Western epistemologies dictate our ontology, as has been the case in the field of CST. We need a new philosophy, of course,

but where do we get it from? From revelation, mystic or religious experiences or intuitions for instance? Certainly not, either!

Fortunately, we do have some forerunners who may provide some clues on how to do so, namely, the critical philosophy of Kant. Kant set up himself in the Critique of Pure Reason to answer the following question: “how are synthetic a priori judgments possible?”. In other words, he wanted to discover the conditions of possibility of experience on which knowledge depended. The conditions of possibility of experience depended on the interplay of two faculties, sensibility with its pure intuitions and the intellect with its pure concepts. Thus, knowledge depended on a priori intuitions and concepts. “Thoughts without intuitions are empty, intuitions without concepts are blind”. However, Kant developed a transcendental philosophy in order to explain the a priori conditions of knowledge but I will develop a world-hypothesis to explain the *conditions of possibility of actual reality*.

In a similar vein, and contrary to Kant (1781, 1787) who believed that metaphysics was a priori knowledge, Schopenhauer (1818/1819) defined philosophy in his master work *The World as Will and Representation* as the “science of experience in general; but the universal and the whole of all experience are its subject and its source” (1969: 183):⁷

“By metaphysics I understand all so-called knowledge that goes beyond the possibility of experience, and so beyond nature [...] in order to give information about that by which, in some sense or another, this experience or nature is conditioned, or in popular language, about that which is hidden behind nature, and renders nature possible” (Ibid: 164)

In fact, in questioning Kant’s approach to metaphysics that resulted in the impossibility of metaphysics, Schopenhauer accused his argument of *begging on the question*:

⁷ Aristotle identified the subject-matter of metaphysics as: a) the study of “being as such” or being in so far it is being; b) and the study of “first causes”, that is, the ultimate causes of reality. Consequently, instead of using the term ‘metaphysics’ which was introduced later by his editor, Andronicus of Rhodes, Aristotle named it ‘First Philosophy’. For Schopenhauer, coherent with his own philosophy, ‘The World as Will and Representation’, metaphysics was the study of “experience as such” or what makes the world possible. Contrary to Kant, the possibility of experience “cannot possibly be contained in the world itself, but is to be sought only outside it” (1969: 427).

“It is actually a *petitio principii*⁸ of Kant, which he expresses most clearly in § 1 of the *Prolegomena*, that metaphysics may not draw its fundamental concepts and principles from experience. Here it is assumed in advance that only what we know prior to all experience can extend beyond possible experience. Supported by this, Kant then comes and shows that all such knowledge is nothing more than the form of the intellect for the purpose of experience, and that in consequence it cannot lead beyond experience, and from this he then rightly infers the impossibility of all metaphysics” (Ibid: 180).

Not being at all convinced, Schopenhauer adds:

“But does it not rather seem positively wrong-headed that, in order to solve the riddle of experience, in other words, of the world which alone lies before us, we should close our eyes to it, ignore its contents, and take and use for our material merely the empty forms of which we are *a priori* conscious? Is it not rather in keeping with the matter that the *science of experience in general* and as such should draw also from experience? Its problem is itself given to it empirically; why should not its solution also call in the assistance of experience? Is it not inconsistent and absurd that he who speaks of the nature of things should not look at the things themselves, but stick only to certain abstract concepts? It is true that the task of metaphysics is not the observation of particular experiences; but yet it is the correct explanation of experience as a whole” (Ibid: 181).

And later on,

“Therefore, I say that the solution to the riddle of the world must come from an understanding of the world itself; and hence that the task of metaphysics is not to pass over experience in which the world exists, but to understand it thoroughly (Ibid: 428).

In a nutshell, “philosophy is essentially *world-wisdom*: its problem is the world” (Ibid: 187). *Philosophy, like science, is concerned with the world.*

⁸ Begging of the question

By now I hope that Schopenhauer has clarified what philosophy is, but what is exactly the method I'm going to use to discover a world-hypothesis? Well, I would say that unlike the hypothetico-deductive method used in science to discover scientific knowledge, I'm going to use a *hypothetico-inductive method* to discover philosophical knowledge. So far, the only method I've found in the same spirit is Hartmann's *categorical analysis* to discover the *categories of being*. In differentiating it from the deductive method of the old ontology, "which was dominant from Aristotle down to the expiration of Scholasticism" (1953: 7), Hartmann wrote:

"The fact that the method of the new ontology is analytic assumes in this connection a new significance: The categories themselves must be attained by *induction*. So the new way does not lead from them downwards but in every case upwards to them. And in there always remains in that which is reached by this sort of procedure an element of the *hypothetical*" (my emphasis, *Ibid*: 60).

In addition, I have to say up front that science and philosophy are compatible endeavours since both try to explain one and the same world. As Goethe (1825) wrote, "it is always the same world that lies open to our view" (1998: Fragment 309). Therefore, philosophical knowledge cannot contradict scientific knowledge. More will be said about the demarcation between science and philosophy once we finish our philosophical journey.

Chapter 7

World-Hypothesis

Practically speaking, in applying my method of discovery, I kept asking myself:

*What are the conditions of possibility of the actual reality we observe
as a matter of fact?*

I have to say it wasn't a smooth journey: it was tiring and time-consuming, and I had to give up many provisional findings along the way, and find my way back when I realized I had taken the wrong turning. However, once I found the right track, I recovered my energy to continue the journey with more confidence. So what you have in your hands is what I discovered at the end of my journey. However, I don't attempt to provide the ultimate world-hypothesis; all I want is to provide a new world-image that that brings more light into the universe than the prevailing world-images.

To avoid confusions before we move on, I need to clarify what I don't mean by 'world-hypothesis'. I do not mean a worldview, whether the reader regards a worldview as subjective (as in phenomenology) or intersubjective (as in hermeneutics), but a philosophical hypothesis that explains reality. To be more precise, my world-hypothesis, should be assessed, rather than tested, because it's not a scientific hypothesis, according to its explanatory power, by which I mean how well it does as regards the following criteria:

1. *Actuality*. Does it explain the actual reality?
2. *Rationality*. Does it "give a coherent account of reality without internal contradictions" (Copleston 1982: 252)?⁹
3. *Intuitivity* Does it provide intuitive answers to the perennial problems of philosophy?

⁹ Besides, logical coherence, Copleston mentions comprehensiveness and ethics as other criteria to assess the "cognitive value" of world-views. On the one hand, by comprehensiveness he means that it "can accommodate the world of physical science as well as the human being's aesthetic, moral and religious experience" (1982: 252). However, in my opinion, philosophy doesn't have to accommodate science since offer different kinds of explanation about one and the same universe. On the other hand, by ethics he claims that since world-views "include inbuilt judgments of value [...] We can therefore discriminate between them in terms of what we consider to be their probable practical consequences or effects" (Ibid: 252-253). However, as Max Scheler (1913) noticed, "only persons can (originally) be morally good or evil: everything else can be good or evil only by reference to persons" (1973: 85). Therefore, since ethics starts with us, a prefer to see a world-hypothesis not as more or less ethical but as more or less powerful to explain reality.

4. *Complementary*. Does the scientific picture of the universe complete the world-hypothesis?

So these criteria are basically ways to assess the explanatory power of a world-hypothesis and, thus, ways to compare the explanatory power of different world-hypotheses in order to avoid the incommensurability problem.

Before moving on, let me provide some clarifications regarding the difference between scientific and philosophical hypotheses. Someone might wonder whether my world-hypothesis is a theory in the scientific sense. However, the difference between a hypothesis and a theory only applies to science, since in philosophy, a world-hypothesis is always a hypothesis, whereas in science, a hypothesis is a scientific explanation that still needs to be tested. However, following Popper (1963), even though a scientific hypothesis has been tested and has been accepted, it should always be considered as a hypothesis since we will never be able to test all the observations predicted by it. Thus, all scientific theories are provisional and subjected to further revisions in light of new observations.

In addition, the difference between a world-hypothesis and a world-image only applies to philosophy and, what a theory is in science, is what a world-image is in philosophy; that is, a philosophical hypothesis that has been accepted. My philosophical hypothesis, for instance, is a world-hypothesis that has not been accepted, but if one day it becomes accepted, then it will be a 'world-image'. However, like science, a world-image should always be considered a hypothesis subjected to the four criteria I mentioned earlier. Finally, the criterion of complementarity allows a world-hypothesis to be completed by scientific hypotheses.

Talking about a philosophical hypothesis bring progress to mind, but Wittgenstein (1945) once wrote,

“People say again and again that philosophy doesn't really progress, that we are still occupied with the same philosophical problems as were the Greeks. But the people who say that don't understand why this has to be so. It is because our language has remained the same

and keeps seducing us into asking the same questions” (Wittgenstein 1980: 15)

Arguing against this view, Popper (1959, 1963) said

"Language analysts believe that there are no genuine philosophical problems, or that the problems of philosophy, if any, are problems of linguistic usage, or of the meaning of words. I, however, believe that there is at least one philosophical problem in which all thinking men are interested. It is the problem of cosmology: *the problem of understanding the world* (Popper 2005: xviii)

My own view of the matter is that only as long as I have genuine philosophical problems to solve shall I continue to take an interest in philosophy. I fail to understand the attraction of a philosophy without problems (Popper 1963: 70)

Yet, Russell (1912) had a more conciliatory position,

“Philosophy is to be studied, not for the sake of any definite answers to its questions since no definite answers can, as a rule, be known to be true, but rather for the sake of the questions themselves” (Russell 1980: 93-94)

Accordingly, despite accepting that there are real problems in philosophy, Russell didn't believe that there could any real progress in philosophy because philosophical questions are unsolvable by definition, otherwise they would be scientific questions.

I do agree that it may seem that since the Greeks, philosophers have gone round in circles dealing with the same perennial problems without ever making any real progress. Indeed, unlike scientist, philosophers don't seem to reach any agreement regarding philosophical questions. Furthermore, contemporary analytical philosophy even believes that

“the only progress we can attribute it, and only in the best case scenario, is a progressive clarification of the terms in dispute. But never, however, the clarification of the problem itself. Accepting that we can speak of philosophical progress in the areas of pure logic [...],

the philosophy of language or the philosophy of science. All of the areas in which little knowledge of reality can be found” (Ros 1992:1)

However, despite this apparent lack of progress,

“there is more continuity in the history of philosophy than generally believed. If there is an Aristotle that said what he said it is because Parmenides had said what he had said before him. If there is a Hegel is because before there was a Kant” (Ibid 1992: 3).

But this continuity is not a progress in the Hegelian sense in which one philosopher “proposes one thing, the next, rapidly, refutes it, and proposes a different thesis, and, like that, until today” (Ibid 1992: 3). That is, the history of philosophy is not a dialectic synthesis of previous philosophical positions leading to a more comprehensive philosophical system. This view implies that the history of philosophy is always a history of real progress. On the contrary, it seems to me that logical positivism and linguistic philosophy, influenced by the first and the later Wittgenstein respectively, are good cases in point. Thus, if philosophy wants to make any real progress it needs to provide answers to the four perennial problems that have occupied the great philosophers since the Greeks.

1. *The One and the Many (metaphysical dualism)*. What is the relation between the one and the many? In the history of philosophy there have been basically two positions. On the one hand, for Aristotle (350 BCE) the one, the prime mover, is transcendent to the many, the universe. On the other hand, for Spinoza (1677) and Hegel (1830) the One, God, is immanent in the Many, the Universe. In both cases, there ‘is’ an independent being that predetermines reality, thus, we have two realms of being, either in the form of parallel or connected spheres of being. In the case of Plato, there was just one being, the ideal world, since the real world has only apparent being. In any case, the philosophical question behind this problem can be formulated as: how is something rather than nothing possible?
2. *The Matter and the Form (ontological dualism)*: What is the relationship between the matter and the form? According to Aristotle (350 BCE), individual beings are composite substances of matter and form. Matter is the passive element and form active element in the universe. The

resulting picture is a hierarchy of different kinds of substances. Material and mutable substances at the bottom and an immaterial and immutable God at the top. The lowest rank is identified with pure dependence and the highest rank with pure independence. Therefore, this ontological dualism assumes that the universe is a hierarchy of being. This philosophical question can be formulated as: *how is the structure of the universe possible?*

3. *The Subject and the Object (epistemological dualism):* What is the relationship between the subject and the object? According to realists, the subject represents mind-independent objects. The object is independent from the subject. For idealist, objects are nothing but ideas perceived by the subject. ‘The world is my representation”, stated Schopenhauer (1818/1819). The object is dependent on the subject. In either case, the Mind is separate from the Body. This philosophical question can be formulated as: how is knowledge possible?
4. *The Universal and the Particular (logical dualism).* What is the relation between the universal and the particular? Again, two positions have prevailed in the history of philosophy. Plato claiming that the universal exists independently of the particular in a superior realm of being. And Aristotle holding that the universal is immanent to the particular. In the first case, the particular *depends on* the universal and, in the second, the universal is *contained in* the particular. In both cases, however, there is an assumed theory of concepts: lower-order concepts (parts) fall under higher-order concepts (wholes). That is, concepts have a part-whole structure of hierarchical predicates. In any case, the implicit philosophical question can be formulated as: how is thought-structure possible?

Problems	Dualisms	Assumptions	Questions
The One and the Many	Metaphysical	The is something independent predetermining reality	How is something rather than nothing possible?
The Matter and the Form	Ontological	The universe is a hierarchy of being	How is the structure of the universe possible?
The Subject and the Object	Epistemological	The Mind is separate from the Body	How is knowledge possible?
The Universal and the Particular	Logical	Concepts have a part-whole structure of hierarchical predicates	How is knowledge-structure possible?

Table 10. Four Perennial Problems in Philosophy

Chapter 8

Research Question: How to Ground Systems Practice?

Now that I have critically reviewed the relevant literature and stated the research methodology or method of inquiry I followed, it is time to focus on the research questions that will guide the rest of my PhD thesis.

In the previous chapters I have argued that the field of CST hasn't been able to come up with a credible ground for multi-method systemic interventions since the first proposal appeared in 1984 (Jackson and Keys 1984). As I have explained, all the meta-pluralist theories in CST (Flood and Jackson 1991; Jackson 2000,2003; Midgley 1992, 2000; Mingers 1997, 2006) that have been put forward have failed to ground methodological pluralism because they have assumed the "paradigm problem". Thus, my primary research question can be formulated as follows:

How to ground multi-method systemic interventions in a way that dissolves "the paradigm problem"?

In order to answer this crucial question to advance the field of CST, other research questions will need to be answered along the way:

- What is a system?

First, from my critical review of contemporary systems thinking we have seen that there is no consensus on what a system is. According to Jackson, before the 1970s there was indeed a consensus, but this was fractured with the birth of Soft Systems Thinking. Miller's definition was the accepted conception of a system at that time: "a system is a set of interacting units with relationships among them [...] the units (subsystems, components, parts, or members) of these systems are also concrete systems" (1978: 11-12). As was mentioned earlier, this assumes that systems can be divided into parts, even if the parts are systems which, in turn, can be divided into further parts... which nowadays I don't think any system thinker questions. What they did question was the belief that systems were objective entities with an independent existence. Instead, phenomenologists saw systems as subjective world-views, idealist as mental representations and hermeneutics as intersubjective world-views.

- What are the ontological levels of reality?

Second, the previous chapters have also shown that GST with its idea of the hierarchy of levels, came close to the idea of the boundaries of reality, but maybe except for Boulding, these systems theorists were more concerned with finding “isomorphies” between levels of organization than in finding the different ontological levels of reality. This, of course, is understandable given the obsession with the ideal of the Unity of Science (Midgley 2001) which I suggest has become GST’s predicament.

- How are the multiple ontological levels interrelated in a system?

Third, we have also seen that for Gerard (1958) and Miller (1978) the relationships between system levels is mainly one of subordination (lower systems levels dominated by higher level systems), and Miller even postulated the existence of a subsystem, the decider, that controls the living system. In addition, Boulding was the first to point in the right direction when he realized that each level needs to be explained by a different scientific theory, advocating for theoretical pluralism in systems science. Unfortunately, like all system thinkers nowadays, he also believed that social systems are made of human parts, that is, the human system is a part of the social system, despite the use of the ‘member’ euphemism to downplay that relationship.

- What scientific theories do we need in order to explain how different types of systems operate?

Fourth, there is some talk about how theoretical pluralism should inform multi-method systemic interventions (Midgley 2000, 2011), but virtually no discussion about scientific theories that should inform systemic interventions. This is one of the reasons that Midgley (2014) used his Presidential Address to the International Society of the Systems Sciences to argue that we need to bring science back into the picture for use in systemic interventions. It seems to me the systems community is divided into systems science and systems practice without acknowledging that the former needs to inform the latter.

- How do the human systems operate?

As Scheler lamented in 1924:

“After ten thousand years of “history”, we are the first generation in which man has become fully and thoroughly ‘problematic’ to himself; in which he no longer knows what he essentially is, but at the same time also *knows* that he does not know” (2000: 4)

In responding to this challenge labelled ‘The Crisis of Man’s Knowledge of Himself’, Cassirer gave his own answer:

“The great thinkers who have defined man as an *animal rationale* were not empiricists, nor did they ever intend to give an empirical account of human nature. By this definition they were expressing rather a fundamental moral imperative. Reason is a very inadequate term with which to comprehend the forms of man’s cultural life in all their richness and variety. But all these forms are symbolic forms. Hence, instead of defining man as an *animal rationale*, we should define him as *animal symbolicum* [...] The symbolic thought or symbolic behaviour are among the most characteristic features of human life” (1944: 44-45)

Lastly, I believe that the conception, echoed by Boulding (1956), of the human being as a symbolical animal is the most prevalent in our age. Indeed, according to the natural sciences, we are classified as *homo sapiens* but, according to the social sciences, as *animal symbolicum*. However, Part Four will question this *symbolic image* and propose a picture that I believe does more justice to the conscious level in human systems. And, in fact, this level, together with the other levels, is fundamental for every multi-method systemic intervention in human systems.

Part Three

Systems Philosophy

Chapter 9

Metaphysics: How is the Something rather than Nothing Possible?

There is an inescapable question any philosophy that wants to understand the secrets of the universe needs to face. However, since Descartes with his methodological doubt, philosophers have searched for the answers to that question through epistemology. As his argument went, I can doubt about the existence of everything, sensory experience can be erroneous and there could be a devil producing the world I experience, however, I cannot doubt that 'I' doubt. Therefore, a doubting thing needs to exist, *cogito ergo sum*, "I think, therefore I am", as he put it. Ever since that moment ontology has been reduced to epistemology, the question of being has been derived from the question of knowledge. And Descartes is a good case in point: I am a *thinking thing* (*res cogitans*), but also have a body, which is an *extended thing* (*res extensa*). Unlike my mind, my body has parts that can be investigated by science. This, in fact, gave birth to the *mechanistic image* of the universe seeing beings as *extended objects*.

That 'inescapable question' I referred to above is not about the existence of an external world. Cartesian dualism leads to people asking, if all I have are impressions appearing in my mind, how can we actually know that there is an external world causing my impressions? Hume offered an astonishing refutation of this question, which he saw as nothing more than an entertaining speculation that is clearly forgotten as soon as we continue with our daily life. No, it's not the existence of the external world we are getting at, but rather the '*question of reality*': *how is reality possible?* As we saw from Schopenhauer (1818/1819), the problem we need to answer concerns the possibility of experience in general or the possibility of the world, since the "world is my representation", according to him. Indeed, we need to provide an answer to the perennial question that no philosophy can avoid:

How is something rather than nothing possible?

As we know from Parmenides (550 BCE), "nothing comes from nothing"; from nothing you get nothing, as the truism goes. So if there is something, a universe

we happen to live in, it cannot come from nothing. However, before I try to provide a serious answer, we need to see how Schopenhauer (1818/1819) dealt with this matter in his monumental work, *The World as Will and Representation*. In particular, in the second book after having dealt with the question of knowledge in the first book, this sequence is not random, as we will see.

After having argued that the “world is my representation”, Schopenhauer goes on to say that we have just one side of the story, the world as representation, but we are missing the essential side that, in fact, explains how the World is possible, which is up to metaphysics to investigate. Before entering into the details of how he discovers what lies behind the world as representation, we need to remind ourselves that Schopenhauer accepted, in his epistemology, the Cartesian dualism between the Subject and the Object:

“Everything that exists for knowledge, and hence the whole of this world, is only object in relation to the subject, perception of the perceiver, in a word, representation [...] Everything that in any way belongs and can belong to the world is inevitably associated with this being-conditioned by the subject, and it exists. The world is representation” (1969: 3)

And continues saying,

“This truth is by no means new. It was to be found already in the sceptical reflections from which Descartes started. But Berkeley was the first to enunciate it positively, and he has thus rendered an immortal service to philosophy” (Ibid: 3)

However, as have already noticed, this dualism is not ontology-free. Indeed, Cartesian dualism assumed a split between the Mind and the Body. Out of all the objects of experience that a thinking subject can know, his or her body is one of them. The body as an object is part of the world as representation that the subject can experience. In fact, loyal to Kant (1781, 1787), the conditions of possibility of experience are explained by *pure forms of sensibility*, which enable us to intuit objects in space and time; and *pure forms of intellect*, which applies its concepts to given intuitions. So without the concerted effort of both, experience would be impossible. That *sensibility* which provides the material to which the

intellect will apply its own a priori concepts for it to become an object of experience, is identified by Schopenhauer with the *body*.

But in doing this, he is somehow identifying the subject with the object, because the body is an object of experience and sensibility a cognitive faculty of the subject. This seems to run counter to the dualism between the Subject and the Object, and its implicit ontological assumption, since Subject-Object Dualism is no longer coupled with Mind-Body Dualism. I don't think Schopenhauer was even aware of this, since he didn't realize that Mind-Body Dualism resulted from an epistemological assumption, namely, the split between the Subject and the Object presupposed a split between the Mind and the Body.

With this epistemological background set up in the first book, Schopenhauer moves on to the second book to discover the possibility of the World as Representation. And this is where he makes a move to introduce an exception to Subject-Object Dualism:

“In fact, the meaning that I am looking for of the world that stands before me simply as my representation [...] could never be found if the investigator himself were nothing more than the purely knowing subject (a winged cherub without a body). But *he himself is rooted in that world*; and thus he finds himself in it as an *individual*, in other words, his knowledge, which is the conditional supporter of the whole world as representation, is nevertheless *given entirely through the medium of a body*, and the affections of this body are, as we have shown, the starting-point for the understanding in its perception of this world. For the purely knowing subject as such, this body is a representation like any other, an object among objects (my emphasis, Schopenhauer 1969: 99).

Yet, this body is a special type of object since:

“To the subject of knowing, who appears as an individual only through his identity with the body, this body is given in two entirely different ways. It is given in intelligent perception as representation, as an object among objects, liable to the laws of these objects. But it is also given in quite a different way, namely as what is known

immediately to everyone, and is denoted by the word *will*. *Every true act of his will is also at once and inevitably a movement of his body* [...] *The act of will and the action of the body* [...] *are one and the same thing*, though given in two entirely different ways, first quite directly, and then in perception for the understanding. The action of the body is nothing but the act of will objectified” (my emphasis Ibid: 100).

So in the first paragraph he introduces an exception to Subject-Object Dualism, claiming a Mind-Body Identity; and in the second paragraph, Schopenhauer argues that the Body is given to the Subject simultaneously as both Representation and Will, claiming a Will-Body Identity. In particular, he defines the body as “*the objectification of the will*” (Ibid: 100).

In short, Schopenhauer believes that our body is the key to discovering our inner nature; without our body we wouldn't be able to have knowledge of our will. However, he believes that this same key (the body) opens the door to the other part of the equation of reality: *the World as Will*.

“We can never get at the inner nature of things *from without*. However much we may investigate, we obtain nothing but images and names. We are like a man who goes round a castle, looking in vain for an entrance, and sometimes sketching the facades. Yet this is the path that all philosophers before me have followed” (Ibid: 99).

Before making that move to prove that the inner essence of the universe is like our will which we have immediate access to, thanks to our body, Schopenhauer by-passes the criticism of the sceptic who denies the existence of the external world, saying the problem of reality is not whether an external world exists outside our mind, but whether the World as Representation is, like our own body, an objectification of the Will.

“To deny this is the meaning of *theoretical egoism*, which in this way regards as phantoms all phenomena outside its own body [...] Theoretical egoism, of course, can never be refuted by proofs, yet in philosophy it has never been positively used otherwise than as a sceptical sophism [...] Therefore we do not go into it any further, but

regard it as the last stronghold of scepticism, which is always polemical" (Ibid: 104).

Without hesitation, Schopenhauer dismisses altogether Hume's scepticism and believes that the evidence of that double knowledge of our body as representation and as will offers the key to answer the problem of reality.

"We shall judge all objects which are not our own body, and therefore are given to our consciousness not in the double way, but only as representations, according to the analogy of this body. We shall therefore assume that as, on the one hand, they are representation, just like our body, and are in this respect homogeneous with it, so on the other hand, if we set aside their existence as the subject's representation, what still remains over must be, according to its inner nature, the same as what in ourselves we call will" (Ibid: 105).

Concluding that,

"He will recognize that same will not only in those phenomena that are quite similar to his own, in men and animals, as their innermost nature, but continued reflection will lead him to recognize the force that shoots and vegetates in the plant, indeed the force by which the crystal is formed [...] all these he will recognize as different only in the phenomenon, but the same according to their inner nature. He will recognize them all as that which is immediately known to him so intimately and better than everything else, and where it appears most distinctly is called will" (Ibid: 110-111).

Now that we know Schopenhauer's whole argument to decipher the problem of reality, let us critically review its main inconsistencies, before we answer our crucial question: *why there is a universe rather than nothing?* Well, the first move was his exception to the Subject-Object Dualism informing his epistemology, arguing that the sensibility, a faculty of the Subject, comes from the Body, in order to claim the *Mind-Body Identity*. Then, Schopenhauer uses our body as a secret door to have immediate access to our will, since our body provides us with a simultaneous knowledge of our body as will and representation. Here he is

inferring that that double knowledge is, in fact, two sides of the same coin, the body seen from outside, as representation, and the body seen from inside, as our will. Therefore, those two sides are one and the same, embracing the *Will-Body Identity*, saying that volitional acts and corporeal actions are identical, since our body is a manifestation of our will. Finally, by analogy with our body, Schopenhauer infers the same Will-Body Identity in all phenomena of the universe.

Despite the apparent consistency of the argument, however, we can see that Schopenhauer has simultaneously assumed Subject-Object Dualism, epistemologically speaking, and Mind-Body Identity, ontologically speaking. Yet, the latter is inconsistent with an idealistic epistemology. Moreover, this invocation of analogy to infer that Will-Body Identity exists in other bodies is also inconsistent with his idealistic claim that “the world is my representation”, since it suffers from the so-called problem of ‘Other Minds’. That is, if there is no external world independent from my mind, how can I accept the existence of other minds? In this case, however, Schopenhauer was not proving the existence of “Other Minds” in order to avoid the criticism of solipsism, but rather was concerned with the existence of ‘Other Mind-Bodies’. I conclude here that the Mind-Body Identity and the existence of Other Mind-Body Identities, does not follow from an idealistic epistemology which accepts Mind-Body Dualism and cannot explain the existence of Other Minds.

Fortunately, even if Schopenhauer wasn't able to provide a satisfactory argument to ground the problem of reality, he's claimed solution, namely, that the Universe is the manifestation of the Will, may still offer a promising ground to discover the solution to *why there is a universe rather than nothing*. It is time to point out how the *hypothetico-inductive method* may aid us at this moment. But it's also time to remember that the only other example I know of that applies the inductive method to philosophy is Hartmann's (1939) *categorical analysis*. For Hartmann, unlike Schopenhauer, the world is not problematic per se but a given concretum from which we can apprehend its principles or conditions of possibility. In order words, categorical analysis is a methodology that infers inductively the structure of

the world (principles) from the *concretum*¹⁰. For Hartmann, unlike Schopenhauer who found that the conditions of possibility of reality are independent from the world, the principles were immanent in the world. Therefore, both Schopenhauer and Hartmann are dealing with different questions, the former with the question of reality (how is something rather than nothing possible?) and the latter with the question of being (how is the structure of the universe possible?). Indeed, in his first-volume *Foundations of Ontology* (1935), Hartmann started by assuming that there 'is' something, the *entity*, which has two *moments of being*, the entity 'being-there' (existence) and 'being-thus' (essence). However, this presupposes that there is something that 'is', the entity, without questioning how it is possible. But isn't the question of reality more fundamental than the question of being? Can any philosophy avoid it without assuming an answer to it? I'm afraid not, and we will see in Chapter 10 that Hartmann is in fact a good example.

I don't see any reason why we should restrict the use of the hypothetico-inductive method to the question of being, taking the world as a given assumption without explaining why there is something rather than nothing. However, this doesn't mean we must search for the cause of the world beyond the world itself, as Schopenhauer did. Moreover, the question of being already implies an answer to the question of reality. So let us assume, as a world-hypothesis, that the Will is the cause of the Universe. If so, would the world we see make more sense? For one thing, we see that everything in this universe is striving. This is also what Schopenhauer saw:

“For, as every body must be regarded as the phenomenon of a will, which will necessarily manifests itself as a striving, the original condition or state of every heavenly body formed into a globe cannot be rest, but motion, a striving forward into endless space, without rest or aim” (Ibid: 148)

“In fact, absence of all aim, of all limits, belongs to the essential nature of the will in itself, which is an endless striving” (Ibid: 164)

¹⁰ To be more precise, categorial analysis combines four methods: the analytic method (retrograde inference of the categories from the *concretum*); the phenomenological method (clarification and description of the phenomena); dialectical method (knowledge about the multiples categories that belong to a stratum of reality); and finally the “method of the perspective of strata” (1960: 43).

Leaving aside at the moment whether that endless striving is purposeless or meaningless, it does seem plausible that the Will could be the cause of the Universe. Otherwise, why is there is a world rather than nothing?

“This *will* [...] the sole truly real, primary, metaphysical thing in the world [...] gives all things, whatever they may be, the power to exist and to act” (1889: 216-217).

Why not? Let’s assume it as a world-hypothesis. Well, Popper would say that this is not a scientific hypothesis because “*as scientists we do not seek highly probable theories but explanations: that is to say, powerful and improvable theories*” (1972: 58). Moreover, a hypothesis that is confirmed by every experience and cannot be disproved by any experience at all is not scientific. Indeed, Popper was absolutely right in believing so because philosophy is not science. However, it is one and the same world they try to explain and thus can provide complementary pictures of reality. In addition, I also agree with Popper, that “all theories are, and remain hypothesis: they are conjecture (*doxa*) as opposed to indubitable knowledge (*episteme*)” (Ibid: 104).

However, not all theories are relevant to our quest for knowledge:

“We want more than mere truth: what we look for is *interesting truth* – truth which is hard to come by [...] truth which has a high degree of explanatory power [...] Mere truth is not enough: what we look for are *answers to our problems* [...] Only if it is an answer to a problem – a difficult, a fertile problem, a problem of some depth- does a truth, or a conjecture about a truth, become relevant to science” (Ibid: 229-230).

Therefore, this world-hypothesis which explains why there is a universe rather than nothing is a philosophical conjecture that has a high degree of explanatory power, as I will try to demonstrate with the argument in this PhD. Indeed, we will take this world-hypothesis as a starting point to illuminate our journey. Therefore, before we dismiss it as plain nonsense on the grounds that it’s not scientific, let us suspend our judgment for the time being and use it as a working-hypothesis to inform the rest of our inquiry. Only then we will be able to test its explanatory power.

Dualisms in Western Thought

I think it is time to justify why we need to start with metaphysics instead of assuming the universe as a given reality. In comparing Schopenhauer's question of reality with Hartmann's question of being we said that the former stated with metaphysics and the latter with ontology. Well, if we don't distinguish does two questions, we will be conflating metaphysics with ontology and implicitly assuming a metaphysical dualism pervading not only modern and contemporary philosophy but the actual roots of Western thought. It wasn't an exaggeration when Whitehead wrote in *Process and Reality* that "the safest general characterization of the European philosophical tradition is that it consists of series of footnotes to Plato" (1929:39)

Matter-Spirit Dualism

I will have to attribute this metaphysical dualism to Plato, since the pre-Socratics thought the unifying principle and primary element of all things was material, be it water (Thales, c. 624 – c. 546 BCE), Indeterminate (Anaximander, c. 610 – c. 546 BCE), air (Anaximenes, c. 585 – c. 528 BCE) or fire (Heraclitus, c. 535 – c. 475 BCE). We mentioned that the Cartesian epistemological dualism between the Subject and the Object assumed an ontological dualism between the Mind and the Body, the "res cogitans" and the "res extensa". However, this dualism we are about to introduce is prior the epistemological and the ontological dualisms. As we know from his writing, Plato claimed that the Sensible World of material things we experience through our senses derives its being from the Intelligible World of Forms, because material things are just imperfect copies of Forms. We won't enter into how the Demiurge "fashioned and shaped" the Sensible World imitating Forms, but we can clearly see that Plato's metaphysics is basically divided between a corporeal and incorporeal reality. Material things live in a spatial-temporal reality and Forms in a reality beyond space and time. In the Sensible World, material things change and, in the Intelligible World, Forms are changeless. In my opinion, *this distinction between the corporeal and incorporeal reality takes for granted a metaphysical dualism between Matter and Spirit implicit in Western thought*. Hence, if we don't start questioning that there are two parallel realities we will be accepting uncritically Matter-Spirit Dualism that

runs across Western thought. Furthermore, if we want to avoid this metaphysical dualism altogether we need to stop conflating ontology with metaphysics, and, thus, distinguish clearly ontology from metaphysics. Whereas metaphysics questions reality to discover how reality is possible, ontology questions being to discover how the structure of the universe is possible. If we don't question reality itself, we will be accepting that reality is split between a material universe contained in space and time and spiritual universe beyond space and time. In other words, we will have to accept either two parallel realities or that one of those realities is more real than the other, which is what Plato believed, the corporeal reality (Matter) being a copy of the incorporeal reality (Spirit).

It might seem a strong claim that the Matter-Spirit Dualism runs across all Western metaphysics, but I will give a few outstanding examples in the history of Western thought to ground my statement. Plato's dualism between the Sensible World and the Intelligible World finds its parallel in Leibniz's dualism between the Realm of Nature, populated by bodies, and the Realm of Grace, hosting monads. Furthermore, just like Plato considered Forms as truly real beings, Leibniz clearly favoured monads over bodies. Bodies are merely appearances whereas monads are true beings. Clearly, we can see how their metaphysical dualism determines what has true being (Spirit) and what has only an apparent being (Matter).

Later this metaphysical dualism had a revival in German Idealism triggered by Schelling's (1800) reaction to Fichte's (1794/1795) notion of Nature as Not-Self and proposed instead a view of Nature based on Spinoza (1677) that became very influential in German Romanticism. Nature was an unconscious organism from which self-consciousness emerged. In contrast to Fichte, the Ideal derived from the Real. For Hegel (1812/1816), however, only the Ideal was real. In his *Logic*, the Idea is the true being revealing in space (Nature) and time (Spirit).

Two more philosophers are worth mentioning since they will appear later on. Hartmann's (1940) also made a split between Nature, as spatial and material, and Spirit, as non-spatial and immaterial. Finally, Scheler (2008) believed that matter has no being, and only living and spiritual beings have true being. He advocated for a Life-Spirit metaphysical dualism in which Spirit was coming into being through Life.

This is only to give you a taste of the power of clearly distinguishing metaphysics from ontology. If we don't do so, we will uncritically replicate and reinforce the Matter-Spirit Dualism that pervades Western thought, as discussed above. But before we move to the next chapter devoted to ontology, let me give a few examples of the other dualisms that, together with metaphysical dualism, constitute Western thought.

Matter-Form Dualism

Our next dualism has its roots in the work of Aristotle (350 B.C.E) who defended an ontological dualism in Nature which included the totality of beings that are both material and subject to movement. Moreover, all beings tend towards an end which is the development of something pre-existing in them: the form. But in order to do so, beings also have something that can receive a form: the matter. That is, beings, as individual substances, were composite of matter and form. In addition, Aristotle introduced a parallel distinction between act and potency to connect the structure of the beings with his teleological conception of Nature. Matter was in a potential state of receiving a Form as an actual state that manifested the Essence of a being. Indeed, that essence corresponded with the End of its movements. So every being in Nature had an essence to which it tended as an end.

This conception resulted in a hierarchy of beings that started with Pure Potency or Matter of the four classical elements (earth, water, air, and fire) that constituted inorganic beings and finished by the Pure Act or Form of God, which, unlike Nature, was both immaterial and not subject to change. And in between he located other beings in order of perfection: plants, animals and humans. Unlike inorganic being, these beings were animated by different types of soul: vegetative, sensitive and rational. This connection between life and soul is important to understand that, according to Aristotle (350 BCE), the soul was a vital principle enabling the activity of animated bodies. In other words, form was the active element and matter the passive element of a composite substance. Movement comes from Form since Matter is a mere subject of change. Therefore, *the structure of the universe is hierarchy of beings ranked by activity, from pure*

passivity to pure activity. What is paradoxical is that God at the top is an unmoved mover attracting the entire universe without being connected with Nature.

Object-Subject Dualism

Our next philosopher, Descartes (1637), give priority of the question of knowledge over the question of being and, in so doing, reduces ontology to epistemology. In other words, the ontological division between the thinking substance and the extended substance resulted from assuming an epistemological dualism between the Subject and the Object. As the argument goes, in doubting about everything that it was possible to be doubtful about, Descartes reached what he described as an indubitable truth: that there was a Subject that could doubt about everything except itself and, hence, it meant that there was a subject who existed. And this subject was a thinking substance. It could doubt about the external world and its objects but not about itself. However, since God was good the objects that Descartes experienced in the external world could not be an illusion either, but instead extended substances.

Moreover, the epistemological dualism of the Subject and the Object was also present in Locke's (1671) distinction between primary and secondary qualities.

“I call original or primary qualities of body, which I think we may observe to produce simple ideas in us, viz. solidity, extension, figure, motion or rest, and number [and secondary qualities] “such qualities which in truth are nothing in the objects themselves but power to produce various sensations in us by their primary qualities, i.e. by the bulk, figure, texture, and motion of their insensible parts, as colours, sounds, tastes” (1996: 49).

Therefore, primary qualities belong to the Object and secondary qualities to the Subject.

Later, Berkeley (1710), denied that there were any objects independent of the subject. The Objects perceived by the Subject were ideas in the mind. Furthermore, Objects only exist if perceived by a Subject because “esse est percipi”, that is, “to be is to be perceived”.

“This perceiving, active being what I call *mind, spirit, soul or myself*. By which word I do not denote any one of my ideas, but a thing entirely distinct from them, wherein they exit, or, which is that same thing, whereby they are perceived; for the existence of an idea consists in being perceived” (1995: 23).

Finally, Subject-Object dualism reached the status of principle in Schopenhauer’s epistemology (1818/1819).

“The world is my representation [...] Therefore no truth is more certain, more independent of all others, and less in need of proof than this, namely that everything that exists for knowledge, and hence the whole of this world, is only object in relation to the subject, perception of the perceiver, in a word, representation” (1969: 3).

Self-Other Dualism

Our last dualism in the history of Western thought is the one dominating contemporary philosophy: the Self (subjectivity) and Other (intersubjectivity). The founder of this dualism is none other than Husserl, the father of phenomenology. Unhappy with the solipsistic implications of his Ego, he wrote the Fifth Meditation in the *Cartesian Meditations* (1931) as an attempt to explain the experience of the Other Ego by means of the phenomenological method. The Other is experienced by the Self as an analogous physical-psychical unity, “the Other’s animate body and his governing Ego are given in the manner that characterizes *a unitary transcending experience*” (1982: 114). This experience constitutes the original “*community, developing at various levels, which is produced forthwith by virtue of experiencing someone else*” (Ibid: 120). According to Husserl, “we speak of perceiving someone else and then of perceiving the Objective world, perceiving that the other Ego and I are looking at the same world” (Ibid: 124). Later, in the *Crisis* (1936), that same world *we* experience was the *lived-world* in which the Other becomes a correlate of the Self. That is, phenomenologically speaking, the Other is to the Self what the Object is to the Subject. The Self and the Other are mutually implicated in the lived-world. However, the Self constitutes the Other.

Moreover, the lived-world embraces the Objective world of science. Therefore, the Self-Other has absorbed the Subject-Object.

Then came along Scheler (1922) who used the phenomenological method to prove that the Other is more original than the Self: "man lives from the beginning rather "in" other people's experiences than in his individual sphere" (Schutz 1942: 332). That is, "the sphere of the "we" is pregiven to the sphere of the I: the sphere of the Self emerges relatively late from the background of an all-embracing consciousness" (Ibid: 335). Unlike Husserl, the Other is prior to the Self. That is, our original experience is an Other-experience out of which the Self-experience emerges. We experience the Collective world before we experience the Individual world. In agreement with Husserl, however, the Collective world is prior to the Objective world. Both phenomenologists see the social world as extra-linguistic in nature.

According to our next philosopher, Heidegger (1927), the human being or Dasein is a Being-in-the-World. The Self encounters a world of Objects ready-to-hand that refers to Others.

"By 'Others' we do not mean everyone else but me—those over against whom the 'I' stands out. They are rather those from whom, for the most part, one does not distinguish oneself—those among whom one is too... By reason of this with-like Being-in-the-world, the world is always the one that I share with Others. (1962: 154–5).

The Other is no longer the correlate of the Self but a world shared with Others. The Self encounters a socially constituted world. The Self doesn't experience the Other; the Self encounters the Other. The Other is not an extra-linguistic reality experienced by the Self. "Dasein is for the sake of the 'they' in an everyday manner, and the 'they' itself articulates the referential context of significance (Ibid: 222)".

Lastly, Gadamer (1960) will reduce being to language. The world is linguistically constituted.

"Human language must be thought of as a special and unique life process since, in linguistic communication, "world" is disclosed [...] The world is the common ground, trodden by none and recognized

by all, uniting all who talk to one another. All kinds of human community are kinds of linguistic community: even more, they form language" (2006: 443).

In other words, the Other has become a linguistic being. "Being that can be understood is language" (Ibid: 470). The Other constitutes the Self.

World-Images in Western Thought

What is interesting is that the *image of the world* prevailing in each period of Western thought was defined by a different dualism. First, the ancient image was well captured by Neoplatonism; the Sensible World emanated from Intelligible World through the Intellect and the Soul. "All the things, then, which exist as forms in the world of sense come from that intelligible world" (Plotinus V9: P10). The material world derives from the spiritual world. Second, according to the medieval image, the universe is a hierarchy of beings created and guided by God towards its Goodness. Thus, the *intelligible* image gave way to the *teleological image* of the universe. Transcendent Forms were transformed into Composite Substances of matter and form, in which humans have an opposite nature: partly material and perishable (body) and partly immaterial and eternal (soul). Third, the teleological image was replaced by the *natural image* of the world. The beings in the universe became extended bodies. In Descartes' own words, "extension in length, breadth, and depth constitutes the nature of corporeal substance" (Principles of Philosophy CSM I, 210). Yet, Subjects had a thinking nature. For Hobbes (1662), however, everything in the universe was extended, including minds and God itself. Similarly, according to Spinoza (1677), though God has infinite attributes, "extension is an attribute of God, or God is an extended thing" (Part II, P2). Finally, even for Berkeley (1710), extension was a quality of the bodies (ideas) perceived by minds. Thus, composite substances were transformed into extended bodies. In fact, *the modern image of the natural world is still prevailing in the natural sciences*. Finally, *the contemporary image of the social world is nowadays prevailing in the social sciences*. That is, humans live in a world constituted by language. The image of the world has now become a discourse, a way of speaking and writing about the world. The being of the world is now defined by language. Extended bodies have given way to linguistic meanings. The

world is no longer what it 'is' in itself but what it 'is' for a community. The being of the world is now defined by society itself.

Western philosophy	Dualism	World-images	Beings
Ancient	Matter-Spirit (Plato)	Intelligible world	Transcendent Forms
Medieval	Matter-Form (Aristotle)	Teleological world	Composite substances
Modern	Subject-Object (Descartes)	Natural world	Extended Bodies
Contemporary	Self-Other (Husserl)	Social world	Linguistic meanings

Table 11. World-Images in the History of Western Thought

To summarize, we can read the history of Western thought as a series of dualisms feeding on each other and generating different world images. Thus, CST cannot assume uncritically the 'Western Dualisms' if it wants to ground systems practice on a world image that does justice to reality.

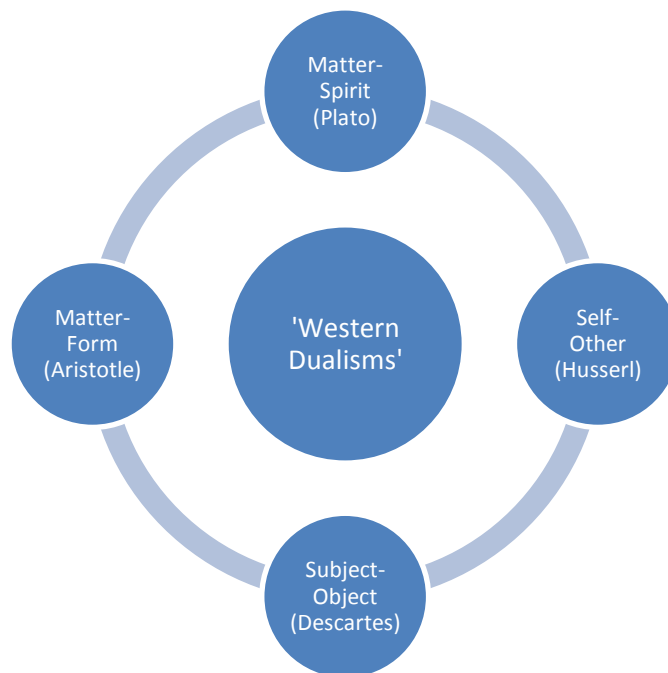


Diagram 4. Dualisms in the History of Western Thought

But before we move on to the next chapter, we can say that the metaphysical dualism is still assumed, since one world-image builds on the previous one by assimilating the old dualism into the new world-image. That means that somehow Matter and Spirit Dualism is deeply implicit in Western thought. Hence, if we don't start questioning the assumption of two parallel realities, we will be accepting uncritically the corporeal and incorporeal realities. That is, if we don't question reality itself we will be accepting that reality is split between a material universe contained in space and time and spiritual universe beyond space and time. However, *what we see is not two parallel worlds but one single universe which is caused by its own will, as my world-hypothesis suggest. In short, world is self-caused.* Furthermore, unlike Schopenhauer's Will, the will is not one for all beings since every being has its own individual will, as I will argue in the next chapter (Section 5). Let us move now to the question of being.

Chapter 10

Ontology: How is the Structure of the Universe Possible?

Section 1

The Question of being

The answer to the 'question of reality' naturally leads us to the 'question of being'. Now that I have proposed an answer to how reality is possible, we need to explain how the structure of the universe is possible. In addition, my world-hypothesis not only explains why there is a world rather than nothing, but also illuminates the structure of that universe that we see before us. Therefore, the question of being is about the structure of the universe that cannot be taken as a given either.

In reviewing Boulding's (1956) work in Chapter 5 we implicitly derived some ontological levels from his hierarchy of systems, but to be honest this was just a starting point, since we will need to discover the more general structure of the universe before we identify the particular ontological levels of reality. All we know about systems up until now, or what is generally accepted in systems science, is that higher levels of organization *emerge* from lower levels and that they have "new" properties that are not found in lower level systems, the whole is more than the sum of the parts, as the truism goes. Moreover, higher level systems constrain the behaviour of lower level systems; hence, the *hierarchy* of systems in systems thinking. Lastly, that the universe is a hierarchy of emerging systems that came into being through *evolution*.

To cite one of its exponents nowadays,

"one kind of evolution prepares the ground for the next. Out of the conditions created by evolution in the physical realm emerge the conditions that permit biological evolution to take off. And out of the conditions created by biological evolution come the conditions that

allow human beings—and many other species—to evolve certain social forms of organization” (Laszlo 1987: 9).

Therefore, maybe I’m not wrong to claim that, deep down, systems science assumes an evolutionary paradigm derived from an organismic view of the universe. But is another world possible? Well, equipped with my world-hypothesis I will try to provide a different picture of the universe. Given that Schopenhauer (1818/1819) was the instigator of my world-hypothesis let us follow him for a while and see how far he takes us into this journey to discover what the universe looks like. If we remember, the body like the rest of the universe is an objectification of the Will; that is, every phenomenon in the universe is a manifestation of the Will. In fact, Schopenhauer claimed that the Will is ‘one’ but multiple in its manifestations captured by our minds. The Will’s manifestations are subject to the principle of individuation that our minds use to explain all the phenomena in the universe. In addition, since the Will itself is not a representation but that which manifests itself, it lies beyond the principle of individuation. Between the Will and its manifestations, however, Schopenhauer postulated a layered realm of beings that exist beyond the principle of individuation. Interestingly, these intermediate realities which he names as “*the grades of the objectification of the will* are nothing but *Plato’s Ideas*” (1969: 129)

To explain what he means by Platonic ideas, he uses Diogenes Laërtius’ interpretation. "Plato teaches that the Ideas exist in nature, so to speak, as patterns or prototypes, and that the remainder of things only resemble them, and exist as their copies" (Ibid: 130). In so doing, Schopenhauer allows a second exception (the first is the Mind-Body Identity) to his philosophy since the structure of universe as a manifestation of the will is not subjected to the principle of individuation. I suppose that he realized that the levels of the objectification of the will were, in fact, the ontological levels of reality, since the universe has its own structure independently of our minds. If so, he was contradicting his own idealistic epistemology since the world is meant to be our representation. So I suppose that, strictly speaking, Schopenhauer didn’t believe that the ontological levels of reality were mere representations in the mind, claiming instead that the principle of individuation “does not belong to [Will], or to its original objectivity, namely the Ideas” (Ibid: 159-160).

However, in trying to escape from a Platonic realism of ideas existing in the Realm of Forms, Schopenhauer makes use of Aristotle's concept of substantial forms to offer a naturalistic account of ideas. "For Aristotle's forma substantialis denotes exactly what I call the degree of the will's objectification in a thing" (Ibid: 143). I suggest he meant that his ideas were more like Aristotle's forms in the sense that they did not live in another universe but were intrinsic to the things themselves. Still, Aristotle's forms are not beyond Schopenhauer's principle of individuation since they exist in space and time. Anyway, what ontological levels did Schopenhauer identify in the universe? In line with the traditional Great Chain of Being, he proposed the following hierarchy of beings (Diagram 4):

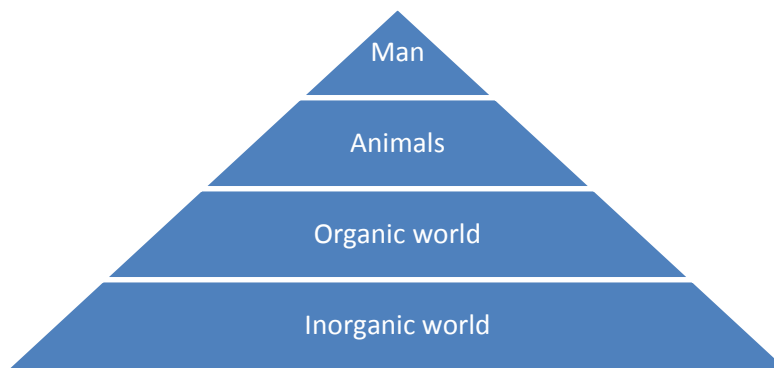


Diagram 5. Schopenhauer's Ontological Levels

Like Boulding (1956), Schopenhauer clearly distinguishes the organic from the animal world on the grounds that cognition, or the image in Boulding's terms, starts in the animal kingdom. This contradicts not only Miller's (1978) living systems theory that places information-processing in all levels of organization, but also Maturana's theory of cognition that claims that cognition is life itself: "living systems are cognitive systems, and living as a process is a process of cognition" (1970: 46). But Maturana wasn't alone in claiming so, for Scheler the organic and the psychic were also intrinsic to life. "The life center is also an experiencing centre insofar as it is inwardness" (Scheler 2008: 172); defining "the psychic as the inwardness of a living creature" (2008: 173). Anyway, we will have plenty of time to identify and map each ontological level of reality.

Section 2

The Structure of the Universe

Before we identify the ontological levels, it is important to note that Schopenhauer's (1818/1819) understanding of the structure of the universe as the grades of the objectification of the Will, has touched upon one of the traditional problems of philosophy: the One and the Many. The Will is One but Many in its manifestations. The World is Many as Representation, but One as Will. However, in between the One and The Many, Schopenhauer introduces an intermediate reality: Plato's ideas, which constitute the structure of the universe. That is, unlike the Many phenomena we experience under the principle of individuation, the Ideas, which are grades of the objectification of the One Will, are beyond space and time and, hence, not subject to the principle of individuation. But then how can Ideas be plural if the principle of individuation "does not belong to [will], or to its original objectivity, namely the Ideas" (Schopenhauer 1969: 159-160)? Indeed, Ideas don't seem to fit in the World as Representation, since they are independent of our mind; nor in the World as Will, since they are Many and the Will is One.

Schopenhauer was wrestling with two parallel realities: the One (Will) and the Many (Phenomena). The Many (Phenomena) are supposed to be a manifestation of the One (Will). On the one hand, the world as Representation is plural, finite, temporal and mutable. On the other hand, the world as Will is one, infinite, eternal and immutable. To put it differently, the world as Will corresponds to Parmenides' (550 BCE) changeless being and the world as Representation to Heraclitus' becoming beings (535 – c. 475 BCE). In addition to these two parallel realities, Schopenhauer introduces Plato's Ideas as an intermediate reality between the world as Representation and the world as Will to explain the hierarchy of beings in the universe. However, as we have seen, that move to introduce an intermediate reality between two parallel realities is very problematic because it doesn't fit either in the Many (Phenomena) or the One (Will). How could Ideas be intrinsic to the Many (phenomena) if they are beyond the principle of individuation? Surely, if Ideas belong to the World of Representation they have to be phenomena in the mind subject to the principle of individuation and hence they can't be mind-independent. Otherwise, how could

Ideas be plural if all plurality comes from experiencing the world under the principle of individuation?

Despite this inconsistency, Schopenhauer saw an immutable and eternal structure that manifested in the world as Representation but wasn't a phenomenon per se. Furthermore, he used that intermediate reality to explain how the ontological levels of reality came into being in a way that reminds me a lot of the evolutionary paradigm that prevails in systems science. It is generally assumed that the levels of reality emerged out of matter through evolution; namely, Life emerged from Matter and Cognition from Life. But let's listen to Schopenhauer's use of Plato's ideas to explain how the ontological levels emerged:

“If several of the phenomena of will at the lower grades of its objectification, that is, in inorganic nature, come into conflict with one another [...] there arises from this conflict the phenomenon of a higher Idea” (1969: 144).

However, the particular level that wages the conflict that gives rise to a higher level idea does not disappear. On the contrary, the lower idea becomes integrated into the higher level:

“This higher Idea subdues all the less perfect phenomena previously existing, yet in such a way that it allows their essential nature to continue in a subordinate manner, since it takes up into itself an analogue of them. This process is intelligible only from the identity of the will apparent in all the Ideas, and from its striving for higher and higher objectification” (Ibid: 145).

In short, “from the contest of lower phenomena the higher one arises, swallowing up all of them, but also realizing the tendency of them all towards a higher degree” (Ibid: 145). Schopenhauer calls this process “subduing assimilation” since he depicts this process as a battle where. “Every grade of the will's objectification fights for the matter, the space, and the time of another” (Ibid: 147). In trying to offer a unified picture of the universe, Schopenhauer was making a common ontological mistake identified by Hartmann:

“There is an arbitrary transfer of categories to other strata not only from the lowest and the highest strata but also from the middle

strata. So a biologism arises which interprets everything organologically (for example, the human community and even cosmic systems)” (1953: 56).

It’s understandable how great minds have succumbed to this categorial error,

“For it is they who are the great discoverers. The delight of discovery seems to ravish the discoverer beyond the realm of his discovery. What he has found in one ontological stratum will seem to him to apply to all other strata. Also there enters into play a natural tendency of viewing the world in as unified a picture as possible and, if at all feasible, of deriving all strata from the same principles” (Ibid: 57).

Besides biologism, Schopenhauer also subscribed to what Hartmann called a metaphysics “from below” in which the ontological levels emerged out of Matter until it reached the last objectification of the Will, “a human being, as the most perfect objectification of that will” (1969: 338). At the other extreme, according to Hartmann, we have the metaphysics “from above” in which the ontological levels emanated from of Spirit. A good example would be Neoplatonism where Matter emanates from Soul, Soul from Intellect and Intellect from God. But do we really need *emergentism* or *emanantism* to explain how the structure of the universe? How the Many comes out of the One? Do we really need to assume that there is a One with Many manifestations to explain the unity in the universe?

According to Hartmann (1939), the prejudice of postulating the unity comes from assuming a categorial monism founded on summum principle which is usually God either in the form of a transcendent God or an immanent God (1959: 168). To give some examples, Aristotle’s (350 BCE) transcendent God as Pure Act is ontologically separate from the World and, in the case of Spinoza and Hegel, the immanent God is one with the World. Whereas Spinoza (1677) reduced the World to God, the Many to the One, the modes to the Infinite Substance, Hegel (1830) reduced God to the World, the One to the Many, the Absolute Spirit to the finite subjects.

Despite calling the One Will, Pure Act, Infinite Substance or Absolute Spirit and the Many Phenomena, Substances, Modes or Subjects, the problem is always the

same. That is, if the One and the Many are ontologically distinct aspects of a single reality and not two parallel realities, how can we explain the relationship between the One and the Many? Before we offer a solution to this fundamental problem in the history of philosophy, let me introduce a table that compares those two sides of the one and the same reality.

God	Universe
One	Many
Infinite	Spatial
Immutable	Mutable
Eternal	Temporal

Table 12. The Attributes of God and the Universe

When I look at this table I don't see two ontologically distinct aspects of one reality (God) but the structure of the universe itself. Indeed, it doesn't really make sense to reduce the Many to the One (Spinoza) or the One to the Many (Hegel), because there is only one reality. What seems to be God's attributes is, in fact, the structure of the Universe itself: *One, Infinite, Immutable and Eternal*. The structure of the universe is *One*, since there is only one reality; *Immutable*, since it never changes; and *Eternal*, since it doesn't have a beginning or end in time. In fact, these three attributes were already proposed by Parmenides (550 BCE), even though he believed that Being was spatially finite and we would have to wait for his disciple, Melissus (5th century BCE), to argue that "if being is limited by nothing, it must be *infinite* and not finite [...] There cannot be a void outside being "for what is empty is nothing. What is nothing cannot be"" (my emphasis, Copleston 1946, Vol.1: 53). Moreover, and this dissolves the One and the Many problem, *the structure of the universe is One but the beings in the universe are Many, beings change but the structure of the universe is one and the same.*

Therefore, metaphysical dualism assumes that reality is predetermined by something independent; that is, two realms of being, even if that something is transcendent or immanent in the universe. However, as we saw from my world-hypothesis, the universe cannot be predetermined by 'something' independent because reality is self-determined. Thus, being is not two: there is *one self-determined being*.

Section 3

Hartmann's Ways of Being and Modes of Being

Ways of Being: Ideality and reality

I mentioned in chapter 9 that the question of being always assumes an answer to the problem of reality and that Hartmann is a good case in point. Indeed, according to Hartmann, what 'is', the entity, has *two ways of being*: the real being and the ideal being. And, like in the One and Many problem, *ideality has an independent being from reality*. Furthermore, despite not reducing reality to materiality, if we look at the attributes of both spheres of being, the Matter-Spirit Dualism shows up, as the following table shows.

Real Being	Ideal Being
Temporal	Timeless
Individual	General
Material or linked to it	Immaterial
Mutable	Immutable

Table 13. Hartmann's Real Being and Ideal Being

So the question of being assumes that that something that 'is' is split between the spatial-temporal (reality) and the non-spatial-non-temporal realm (ideality). Hartmann mentions "numbers, triangles, essences [and] values" (1956: 360) as examples of the ideal being and "things, events, persons and situations" (Ibid.) as examples of the real being. The former are immaterial and immutable and the latter material (or linked to materiality) and mutable. In other words, the Reality-Ideality Dualism parallels the Matter-Spirit Dualism, which assumes that there 'are' two beings.

Let us say a bit more about ideal beings expanding on *essences*. What 'is' an essence? Well, Hartmann makes use of the moments of being,

'being-thus' and 'being-there', to explain what he means by essence as opposed to existence:

"That a person exists, is his "being-there"; its age, appearance, behavior, character, etc., are his "being-thus". The fact that the series of powers has the magnitude a^2 , is its "being-there"; the fact it is = 1, is his "being-thus" [...] All "being-thus" corresponds to a "being-there". Doesn't float in the air, entails a substrate "to which" it is adhered. Is understood, therefore, "being-thus" as quality -although in the broadest sense-, "being-there" as the substrate of quality" (1965: 107-108).

In particular, an essence is something *universal* as opposed to something particular.

"Something that covers all the possible real cases of the corresponding species, thus, the cases that are known and the cases that are not known; something that can only be intuited a priori. [Yet,] this a priori intuition is not purely based on itself, but is generated by the real case. And this is possible because the latter is a special case of the universal" (Ibid: 332).

However, Hartmann insists that the ideal being is not separate from the real being since ideality is contained in reality; that is, the ideal being is immanent in the real being. In fact, *the ideal being is the fundamental structure of reality*. However, "not every ideal being [is] a real structure, neither every real structure is an ideal being" (1965: 360). Indeed, as we see with Hartmann's theory of categories (Section 5 and Section 6), reality has its own general and heterogeneous structures.

In addition,

"the ideal being is, compared with the real, a minor being [since it] is "in" the real but the universal; taken by itself, it never carries the concreteness to the effective individuality. This is why knowledge always apprehends the ideal with a certain dose of abstraction" (1965: 364).

Indeed,

“The ideal being is already in itself only an incomplete being and so to speak floating in the air; the real is, in contrast, the only complete and ontologically endowed with full value” (1956: 492).

However, unlike reality, ideality has *being in itself*; that is, has an ontologically independent existence. “The ideal being is not exhausted in being able to be real structure and being so to a great extent. Also independently from this it exists in itself- as what he is” (1965: 360). Personally, I find it difficult to conceive that a “freely floating sphere” (Ibid.) which is timeless and immaterial can be the fundamental structure of something that is temporal and material (or linked to materiality).

We can finish this comparison between ideality and reality by saying that the spheres of being are not coextensive.

“The sphere of the ideal being covers in its free floating the one of the real being, but the boundaries of both don’t coincide. The content of the ideal being exceeds that of the real [...]. But also the content of the real exceeds [...] the limits of the ideal” (Ibid: 361).

Yet, it is difficult to conceive how a “freely floating sphere” is beyond space and time and at the same time contained ‘in’ reality. Indeed, according to Hartmann, the relation of the ideal being to the real being is one of both independence and immanence. That is, the ideal being exists both ‘in’ and ‘out’ of the real being since it’s immanent and transcendent to the real being. Again, we see the postulation of the existence of something which ‘is’ independent from reality. This duplication of the entity forces Hartmann to duplicate (or multiply) the structures of reality. The ideal being is the *fundamental* structure of reality, indeed, but the real being in turn has *general* and *heterogeneous* structures determined by general and special categories found in the concretum. So we see how Hartmann’s ontology ends up with three types of structures: fundamental, general and heterogeneous structures of reality. But reality is one. Why would we need three structures of one reality? Moreover, in the case of the ideal being, how can something existing beyond space and time be the fundamental structure of the real world?

Surely, if according to my world-hypothesis, what we see is not two parallel worlds but one single reality, which is self-determined, shouldn't the structure of reality be one? Indeed, as I claimed earlier, the structure of the universe is One, Infinite, Immutable and Eternal, and doesn't exist in Many, Spatial, Mutable and Temporal beings. Before we enter into the content of the structure of the universe, I believe that I have to compare my concept of reality with Hartmann's.

Modes of Being: Possibility, Effectivity and necessity.

As I mentioned in Chapter 7, a world-hypothesis has to explain the *actual* reality. However, Hartmann believes that *real effectivity*, together with real possibility and real necessity, are the three modal categories of real being. In addition, necessity, possibility and effectivity are also *modes of being* of the ideal being. In fact, he carried out this investigation in his second volume, *Possibility and Effectivity* (1937)] as a prelude to his third volume, *The Fabric of the Real World* (1939), which is about the theory of general categories of real being. Since modes of being are modal categories, let's introduce what Hartmann means by '*categories*' in the first place.

Categories are the "*fundamental determinations of the entity*" (1959: 2), not predicates or concepts. What Hartmann means is that categories are not abstract objects but intrinsic contents of the entity. Furthermore, categories are not being-independent determinations because, unlike the ideal being, they don't have being in themselves but being 'for' concretum. In other words, categories are not independent from the concretum. In the case of modal categories, however, they are the most elemental categories of the entity since they do not have any content as such; for content we will have to wait until the appearance of the actual structure of the real world. Indeed, unlike the previous investigations into his first two volumes on ontology, "the theory of the categories [is] the development of ontology turning to the contents" (Ibid: 2). Thus, strictly speaking, the modes of being are not fundamental determinations of the entity because they lack content, but Hartmann still considers them fundamental categories.

Anyway, in Hartmann's own words, the investigation of the modalities of reality and ideality "has specified what is meant by reality and how it is distinguished

from the ideal being as a deficient being, although it nevertheless contains it within itself” (1959: 226). So what are the modalities of being? We can start with the following table depicting the hierarchical order of modality.

Modality	Definition
Necessity	Cannot be otherwise
Effectivity	Being thus and not otherwise
Possibility	To be thus or not thus
Contingency	Not be necessarily one way (be able to be otherwise)
Non Effectivity	Not being thus
Impossibility	Cannot be thus

Table 14. Hartmann’s Modalities of Being

Well, in the case of reality, Hartmann believes that reality cannot be reduced to real effectivity because there is also real possibility and real necessity, which are intrinsically linked, as we will see. Neither can reality be reduced to actuality (actus), in the Aristotelian sense of the correlate of potency, because this assumes a teleological notion of reality in which a being actualizes an essence. On the contrary, “the real effectivity as such is not a structural moment of the real, it is nothing more than “to be thus and not otherwise”, without the reasons for which it is not otherwise” (1956: 66).

“Real effectivity is the most difficult mode to determine and describe [...]. But on the other hand, it is that mode that we experience in the most drastic ways of being given. These include the data from emotionally transcendent acts, the harshness of lived events, destinies, things that happen to us, the weight of ordinary life with its plenitude and its seriousness. Human existence in its dynamism and dramatism is a unique and great testimony of what is really effective” (1956: 66-67).

However, this is only an approximation, because, as Hartmann says, a mode of being cannot be confused with a mode of knowledge. Thus, real effectivity cannot be reduced to perceptibility. “What is tempting about it is that the witness of the senses is in fact a witness of the real effectivity” (Ibid: 63). Yet, the witness of real effectivity cannot be confused with real effectivity itself. So we are left with an intuitive understanding of real effectivity that cannot be described any further. Maybe we can get a better understanding of the other modes of being of reality.

According to Hartmann, real effectivity already includes real possibility. “Something is only possible when it is effective, but if it is not effective, it is not possible either” (Ibid: 14). In other words, real effectivity is the fulfilment of real possibility.

“Really possible in the strict sense is only that whose conditions are fulfilled until the last. While any one is missing, the thing is not possible, but rather impossible. And the fulfilment of the conditions means nothing other than their real existence, that is, their being really effective. Deep down there is here, then, a relational structure adhered [...] to the universal relations of dependence that constitute the predetermination of the real [...] In a world without the universal dependence of events, formations, and states, the sense of real possibility would be absent” (Ibid: 57)

Moreover, the intermodal relation between real possibility and real effectivity “satisfies the idea that the present is pregnant with the future” (Ibid: 296). This is the idea that “in every moment there is contained the total predetermination of the next event in the previous one” (Ibid: 292). Leibniz (1714) said something similar, “as every present state of a simple substance is naturally a consequence of its preceding state, so its present is pregnant with its future” (Rescher 1991: 96). Thus, Hartmann concludes that “possible is only what is effective or will be effective (or that is in transition to become effective)” (1956: 296). This means that real effectivity is the [...] the full interpenetration of real possibility and real necessity” (Ibid: 228).

Now that we have fleshed out Hartmann’s concept of reality, we can say that reality is completely predetermined because being thus (effectivity) implies it couldn’t have been otherwise (necessity). However, my own concept of reality

doesn't imply necessity but *possibility* instead. How could I claim that the universe is self-determined if it is predetermined? Well, Hartmann thought we could have both in a universe with more than one predetermination; that is, different types of predetermination, such as causality and finality. Nevertheless, in Hartmann's universe, all the special predeterminations together contribute to one single order of necessary events. In my opinion, a predetermined universe is not compatible with an autonomous universe. However, we will postpone this discussion, since we have already entered Hartmann's general theory of categories with the *fundamental category* of predetermination. Instead, it is time to enter fully into the structure of the universe according to Hartmann.

Section 4

Hartmann's Elemental Structure of Reality

Now I am going to start dealing with Hartmann's third-volume ontology, *The Fabric of the Real World* (1939), which is an investigation into the fundamental contents of the general structure of the universe, as opposed to the special contents of the special concretum of the real world; the so called strata of reality, the heterogeneous structure of universe covered in the next section. Indeed, Hartmann distinguished between a general and a special theory of categories. The former is said to depend on the accumulated experience of the history of philosophy, and the latter on the state of science. However, according to Hartmann, both investigations make use of the same research methodology we saw in Chapter 9 (Page 76-77), namely, *categorial analysis*, which consists in inferring inductively the categories from the concretum. What is interesting to note is that Hartmann sees a clear continuity between philosophy and science claiming, for instance, that the special categories of natural philosophy depend on "empirical material of sciences, the only one from which we can take the special categories of the strata" (1960: 3). Thus, the special theory of categories depends on the progress made by science in concrete domains of phenomena from which the special categories can be apprehended. Let's leave aside for the time being the special categories of the heterogeneous structure of reality and concentrate on fundamental categories related to the general structure of that reality.

According to Hartmann, the fundamental categories cut across all the strata of reality; in fact, they are located below the lowest strata of reality, the material stratum, providing the “elements of a much higher structure” (1959: 225). This means that the fundamental categories are the foundation on which the entire fabric of the universe rests upon. Besides the modal categories, Hartmann also includes the *structural categories* and the *structural laws*, “which concern the internal order and the intercategory relations themselves” (Ibid: 227). But this last set of laws will have to wait until we see how the structure of the universe looks like for Hartmann. Here we are going to deal with the structural categories but only with those that are relevant to our discussion

In fact, some have already ready appeared such as *principle (category)-concretum* and *predetermination*, but I will also need to mention the *element-complex* category and introduce later the *matter-form* dualism; and I will say more about the predetermination of the real being in Section 6. Related with this last point, Hartmann believes that the fundamental categories are common to both the real world and the ideal being. That is, just like the categories of modality apply to reality and ideality, the structural categories are also intrinsic to the ideal being. However, except for the predetermination-dependence and the element-complex, he doesn't say very much as to how the principle-concretum can apply to the ideal being, except that categories and essences cannot be identified.

Well, what do all these structural categories have in common? They are pairs of opposites. Furthermore, “the oppositions of being are the most general categories among the structural elements of the entity, they are the most simple and elemental of the factory of the real world” (Ibid: 243). Indeed, to be honest, the ones that have been picked up for our discussion are the less obvious pairs of opposites, but even if we take them all, only five from a total of twelve pairs would qualify as genuine opposites: interior-exterior, quality-quantity, discrete-continuous, harmony-conflict and element-complex. Unity-multiplicity, for instance, confuses unity with one because the opposite of unity is divisibility.

Anyway, Hartmann traces the discovery of the principle-concretum to Plato's idea-thing dualism. However, he insists that categories are not separate from the concretum since they don't exist in themselves but only 'in' the concretum 'for' which they are categories; that is, categories don't have an independent existence

like the ideal being. Let us analyse the relation between principle-concretum in order not to confuse it with the one between reality-ideality. Both dualisms share the same *relation of subsumption*: categories are contained in the concretum, like ideality is contained in reality. However, there is also a *relation of subordination* between principle-concretum: “principle is that on which “rests” the concretum [...] it is the condition of its possibility” (Ibid: 298). That is, “the principles predetermine their concretum even without us knowing it” (Ibid: 301). Thus, *the concretum depends on the principle*.

However, Hartmann is aware of a contradiction: “the principle is independent from the *concretum*, because it is rather the *concretum* what depends on it; and at the same time it is dependent on the concretum because it only exists in it” (Ibid: 462). His way out of the contradiction is to resort to the relation of subsumption between the individual and the general. That is, the principle is contained in the concretum in the same way as the general is contained in the individual. “There is a double relation in it: [the general] exists independently of the singular case, it is not in fact linked to it, but is not independent of all the real cases. Because it doesn’t have being next to them” (Ibid: 464-465). However, by using this analogy, Hartmann is coming close to claiming that categories are predicates of the concretum instead of fundamental determinations of the entity. That is, general determinations predicated on many individuals, in which case categories would be akin to concepts, something Hartmann denies because categories have an independent existence beyond individual cases.

In addition, besides the subsumption, subordination and independence relationships, the principle-concretum also has a *relation of correspondence*. Indeed, the principle-concretum as a structural category is not only located underneath the lowest strata of reality but also permeates the real world, reaching the highest strata of reality. That permeation, unlike with other structural categories, remains mostly identical throughout the different strata suffering very small variations. According to Hartmann, “the more general and more schematic (that is, the poorer in content) is a category, the more it cuts across simple and identical” (Ibid: 295). So the principle-concretum recurs at every strata of reality. This is when the general theory of categories gets messy, because “the strata of the real have necessarily to be repeated with a corresponding strata of categories” (Ibid: 222). To my understanding, this

correspondence relation between the principle (strata of categories) and the concretum (strata of reality) seems to be duplicating the universe by postulating a stratified world of categories next to the stratified universe. Yet, Hartmann denies so, “principles don’t form [...] a second world together with the world of things, events and singular cases. They are not a cosmos above the cosmos, but a cosmos within the cosmos” (Ibid: 177). But does it change much if that other cosmos is above, on top, outside or inside reality? Do we really need to duplicate the universe if the real world is one single reality? I don’t think so, but now that we have travelled from the bottom to the top of the real world following the principle-concretum, it is time to introduce Hartmann’s stratified universe.

Section 5

Ontological Levels of Reality

Hartmann’s Heterogeneous Structure of Reality

In my opinion, Hartmann’s greatest contribution is the understanding that we live in a universe that has a heterogeneous structure. He is very critical of any attempt to reduce reality to materiality or spirituality, the metaphysical dualism we have seen that permeates the history of Western philosophy since Plato. In addition, he is also critical of philosophies that only see a difference of degree between strata, assuming a continuous transition, and he mentions Aristotle, Leibniz and Schelling as cases in point. In addition, during his life, Hartmann was also witness to the growing organization of the sciences according to what he believed was the major boundaries of reality: nature (sciences of nature) and spirit (sciences of the spirit). This was a confirmation, for him, that the domains of science would eventually correspond with the stratification of the universe. Indeed, as I see it too, the territories of science are dictated by the boundaries of reality.

In fact, since in his time the sciences of the spirit were gaining momentum, Hartmann wrote *The Problem of the Spiritual Being* (1933) to provide “the foundation of the philosophy of history and the sciences of the spirit”, as he wrote in the subtitle of the book. Just like there was a natural philosophy dealing with

the *categories of nature*, there was a need of a philosophy of history that investigated the *categories of spirit*. Ironically, one wonders whether Hartmann wasn't, in fact, falling prey to an artificial boundary of science which he believed was a genuine boundary of reality. I believe this is the most problematic boundary of Hartmann's ontology because it assumes the Matter-Spirit metaphysical dualism.

Furthermore, I should also mention that Hartmann's assumption of the dependence of philosophy on science is also problematic. According to him, progress in philosophy depends on progress in science, since the special categories of the different strata of reality are inferred from the state of science. He was right in assuming that both science and philosophy investigate the real world, but (in my view) wrong in believing that philosophical knowledge depends on scientific knowledge. On the contrary, I would claim that there is *no continuity between the state of science and the state of philosophy because progress in philosophy is independent from science*. However, I won't say any more here because Chapter 13 is devoted to the demarcation between philosophy and science.

After this preliminary discussion about the relationship between science and philosophy, we can now introduce Hartmann's heterogeneous structure, starting from the major boundary of reality demarcating the two domains of science; namely, nature and spirit. Indeed, contrary to Leibniz and Schelling who saw no jumps between strata of, the universe for Hartmann isn't a continuous transition from one group of categories to another, but a stratified universe of different groups of categories. In fact, between the categories of nature and the categories of spirit rests the "great abyss" in the universe:

"This especially sharp boundary [...] was already known since ancient times, for example, in Descartes, Spinoza [...] and Leibniz, as the "psychophysical dividing line". The abyss between the soul and the body takes centre stage and becomes the great problem of the seventeenth century [...] The psychic is undoubtedly linked to the physical stratum, and cannot exist without it, but it is, however, radically different from it; The *cogitatio*, as expressed by Descartes, is a substance distinct from the *extensio*" (1961: 123-124).

According to Hartmann, what we find under the line is the organic stratum and above the line something completely different.

“On the organic rises the psychic stratum, which makes its appearance as consciousness. This stratum constitutive of consciousness is not yet spirit, but clearly stands out from it [...]. The realm of the psychic is characterised by being an inner kingdom, an immaterial and non-spatial world [...] with the psychic a heterogeneous stratum begins” (Ibid: 123).

Thus, the psychophysical line separates consciousness from the organic strata as two heterogeneous groups of categories, since for every strata of reality there is a corresponding strata of categories. Unlike consciousness, the organic stratum is spatial and material.

Hartmann even connects this boundary of reality to Subject-Object Dualism,

“And this opposition responds to the diversity of the ways of giving: the external giving of the things located in space and the inner giving of psychic acts themselves as belonging to the subject itself and belonging to him” (1959: 217)

So what are the defining categories separating nature and spirit then? Basically, *nature and spirit have opposite categories: the former is spatial and material and the latter non-spatial and immaterial*. Does it remind you of the Matter-Spirit Dualism?

However, besides the organic and the psychic strata, there are other groups of categories that predetermine other strata of reality. Below the organic there is the material stratum, and above the psychic stratum is the spiritual. To give an idea of the content of these two strata, we can introduce the types of special predetermination in each of them. Whereas the material stratum is determined by the *causal* nexus, in the spiritual stratum we find the *final* nexus. By nexus, Hartmann means that, in each special concretum, everything takes place according to a sequential relation between events. In the case of the material stratum, there is a causal chain of events in which the effect follows the cause and, regarding the spiritual stratum, there is a consciousness that proposes ends and chooses the appropriate means. However, according to Hartmann, there are

other forms of predetermination and even more than one for some strata, but “the form of nexus is preponderant in the real” (Ibid: 347).

The resulting picture is a stratified universe of four sets of categories corresponding to the four strata of reality. The choice of the word ‘stratum’ is not random since Hartmann talks about a *superposition relation* between the four strata, where one rest on top of the other, like the layers of rock or soil studied by geology. Moreover, making use of the complex-element structural category, he claims that complexes of the higher stratum are composed of elements of the lower strata.

“Between strata there is a very visible relationship. The formations of the upper stratum are composed of those of the lower stratum and are used as ashlar for their own factory. [C]omplexes of the lower stratum become thus elements of the upper stratum” (1961: 121).

However, the complex-element category is appropriate for the strata of nature but has its limits in the strata of the spirit, since the metaphor of “the fabric made of elements or members, which is characteristic of the complex, is not exact here” (1959: 369). This is because, even though every upper stratum rest on top of a lower stratum, we don’t need to imagine the element of the higher stratum “in analogy with the material elements. They do not need to be simple. They can be in turn whole complexes [and] any kind of complex can be in turn an element of further complexes” (Ibid: 362).

Furthermore, complexes are also stratified formations:

“The ascending series of complexes in the total constitution of the real world is not at all continuous. It is subject to the same cuts that are also felt in the remaining forms of the ontic superposition” (Ibid: 362).

Hartmann wants us to distinguish between strata and formations in order to avoid confusing the gradations within each stratum of reality with the different strata. Indeed, inside a given strata we can find gradations of formations; for instance, higher formations (community) composed of lower formations (persons) that don’t belong to different strata. However, as will be argued in Chapter 19, according to Hartmann, some formations such as the subject and the person are

made of acts of consciousness but belong to different strata of reality. This overlap between strata of reality could be due to the lack of progress in the sciences of the spirit compared to the sciences of nature. According to Hartmann, categorial analysis is in its infancy “especially in regard to the higher strata, it can as yet hardly record results worth mentioning” (1952: 63).

Yet, to say that we are lacking the special categories that belong to the higher strata is different from saying we lack the boundaries between higher strata. However, Hartmann insists that “the border lines between the strata are dependent on the categories which are dominant in them” (Ibid: 52). Despite not having established a clear boundary between the psychic and the spiritual strata, the psychophysical line is also problematic. The only approximation that Hartmann mentions is the Subject-Object Dualism between the inner world (non-spatial and immaterial) and the other world (spatial and immaterial) separating the psychic from the organic strata. This means that higher animals and persons, for instance, have an inner and an outer world, according to Hartmann. Again, this means that the person belongs to both of the higher strata. In short, the psychic stratum is the most problematic boundary of reality because it is lacking a clear content of its own. So what are the boundaries of reality? In several passages (1959: 569, 575, 577), Hartmann repeats the following ontological levels.

Ontological Levels	Strata of Categories
Spirit	Categories of Spirit
Consciousness	
Life	Categories of Nature
Matter	

Table 15. Hartmann’s Ontological Levels

With the use of the superposition relation and the element-complex category that, as a fundamental category, permeates the fabric of the real world, it seems that Hartmann conceives the universe as a system of *multiple structures*. So it is difficult to conceive the universe as one single structure because it seems that every group of categories constitutes a special structure. Moreover, as was mentioned earlier, it also seems that we have two stratified worlds side by side: the stratified world of strata (concretum) and the stratified world of categories

(principle). Thus, according to Hartmann, instead of one single structure of reality, we have three types of structures of reality. First, we have a *fundamental structure* of reality predetermined by the ideal being. Next, there is an *elemental structure* of reality predetermined by the structural categories. And now we have the *multiple structures* of reality predetermined by different groups of categories. It could seem at first that every stratum of reality is a closed world in itself, but as we will see in Section 6, Hartmann makes use of another set of fundamental categories, the *structural laws*, to explain the dependence relation between strata of categories and, hence, the unity of the universe.

After having discussed Hartmann's multiple structures of reality, it is time to introduce my own proposal of the boundaries of reality that constitutes the single structure of the universe. Having theorised the different boundaries of reality before having read Hartmann's general theory of categories, I was surprised to see that we both coincide in that opposites are present in the structure of the universe, even though we only share one duality in common; namely, interior-exterior duality. However, in contrast to Hartmann, dualities don't permeate all the levels of reality but are intrinsic to different levels of reality instead. Furthermore, unlike Hartmann, I don't believe that the universe is structured by multiple structures, because the universe has one single structure. In short, the ontological levels of reality are not different structures of reality.

The Ontological Levels of Reality: Dualities of Being

Let me introduce my candidate dualities that I believe are intrinsic to each territory of reality. I guess the first one that rules the material world can be traced back to the Greek philosopher and physician Empedocles.

“things never cease their continual exchange, now through Love all coming together into one, now again each carried apart by the hatred of Strife now again each carried apart by the hatred of Strife”(Trépanier 2004: Fragment 17).

Following Kant (1786), however, and in order to avoid anthropocentric connotations, I prefer to term it as the Attraction-Repulsion Duality instead of the Love-Strife Polarity. In fact, this does not contradict our understanding of matter

and the four fundamental forces that explain the interactions in physical systems commonly accepted by physics. Moreover, this idea of attraction and repulsion in matter had an influence on Newton's (1687) work through the study of alchemy, in particular, the hermetic philosophy. Furthermore, though Kant is known for his philosophy, he proposed a hypothesis to explain the formation and evolution of the solar system based on the duality of attraction and repulsion, the so-called nebular hypothesis in cosmogony. Furthermore, in his first publication at the age of 22, *Thoughts on the True Estimation of Living Forces* Kant (1747) defended Leibniz's (1676–1689) "active force" arguing that "natural bodies" had an intrinsic force against the mechanical cause. What is interesting is that for Leibniz "the natural changes of the monad proceed from an *internal principle*. For an external cause cannot influence their inner make-up" (Rescher 1991:18). What he meant was that monads are autonomous beings.

So we have found that physical being make up the first ontological level of reality ruled by the Attraction-Repulsion Duality, but which duality rules organic beings? We have already mentioned evolution as a process that is postulated to explain the emergence of the levels of organization in the universe. But it was Spencer (1862), well known for coining the expression "the survival of the fittest", who believed that evolution played out throughout the cosmos. Let's listen to how Spencer transfers this category, as Hartmann would say, from biology to the entire universe in his *First Principles of a New System of Philosophy* (1862):

"Now I propose in the first place to show, that this law of organic evolution is the law of all evolution. Whether it be in the development of the Earth, in the development of Life upon its surface, in the development of Society, of Government, of Manufactures, of Commerce, of Language, Literature, Science, Art, this same advance from the simple to the complex, through successive differentiations, holds uniformly. From the earliest traceable cosmical changes down to the latest results of civilization, we shall find that the transformation of the homogeneous into the heterogeneous, is that in which Evolution essentially consists" (2009: 148-149).

Spencer wasn't alone in claiming cosmic evolution. The French philosopher and priest Teilhard de Chardin wrote in the *Phenomenon of Man* (1955):

"Is evolution a theory, a system or a hypothesis? It is much more: it is a general condition to which all theories, all hypotheses, as systems must bow and which they must satisfy henceforth if they are to be thinkable and true. Evolution is a light illuminating all facts, a curve that all lines must follow." (1975: 218).

As a devoted Cristian, Teilhard de Chardin (1955) believed that evolution was "driven by the forces of love, the fragments of the world seek each other so that the world may come to being" (Ibid: 81). In the case of Spencer, he found another intrinsic duality in the process of evolution: "Evolution is a change from an indefinite, incoherent homogeneity, to a definite, coherent heterogeneity; through continuous *differentiations and integration*" (2009: 216). Indeed, we have found our next duality of being, the Differentiation-Integration Duality intrinsic to the organic world.

Before moving to the next duality, it's interesting to see how Spencer treats Force, which sounds a lot like the will of the universe:

"Thus, by the persistence of Force, we really mean the persistence of some Power which transcends our knowledge and conception. The manifestations, as occurring either in ourselves or outside of us, do not persist; but that which persists is the Unknown Cause of these manifestations. In other words, asserting the persistence of Force, is but another mode of asserting an "Unconditioned Reality, without beginning or end" (Ibid: 255).

Although we saw that there is no consensus as to whether Life and Cognition belong to separate ontological levels, maybe the duality in the animal world can help us solve this dilemma. But where can we find the clue to distinguish Life and Cognition? So, what is the difference that makes a difference, to paraphrase Bateson? Well, maybe cybernetics can help us clarify that ontological distinction. Without doubt we could maybe trace back the germ of that distinction to the work of Cannon on the physiology of the body that expanded Bernard's concept of *milieu interior*. Indeed, in a book called the *The Wisdom of the Body* (1932),

Cannon explained the crucial role of the autonomic nervous system in the balance of physiological processes in the body. In justifying why he chose to call the steady-state found in the body 'homeostasis', he wrote:

“The constant conditions which are maintained in the body might be termed equilibria. That word, however, has come to have fairly exact meaning as applied to relatively simple physico-chemical states, in closed systems, where known forces are balanced. The coordinated physiological processes which maintain most of the steady states in the organism are so complex and so peculiar to living beings – involving, as they may, the brain and nerves, the heart, lungs, kidneys and spleen, all working cooperatively” (1932: 24).

It's understandable why Cannon preferred homeostasis instead of equilibria given that the latter is often associated with closed systems. What he found to be fundamental in the self-regulation of the body was the balance between two intrinsic forces; namely, *autonomy* and *control*. Moreover, the difference that makes a difference between the organic and animal world, according to Cannon, is that equilibrium is due to information. Therefore, it's also understandable why von Bertalanffy (1950) wanted to differentiate open-systems from cybernetic systems since, as Leibniz would say, the latter “have no windows through which something can enter into or depart from them” (Rescher 1991: 17). However, Miller (1978) saw information as fundamental to all living systems conflating Life and Cognition. In the case of Boulding, cybernetic systems were located at the level of the thermostat (closed system), but he saw the need to separate information-processing systems from open systems and even introduced a completely different level for the animal, writing:

“Here we have the development of specialized information-receptors (eyes, ears, etc.) leading to an enormous increase in the intake of information; we have also a great development of nervous systems, leading ultimately to the brain, as an organizer of the information intake into a knowledge structure or “image. Increasingly as we ascend the scale of animal life, behaviour is response not to a specific stimulus but to an “image” or knowledge structure or view of the environment as a whole” (1956: 204).

Now that we have found the Autonomy-Control Duality intrinsic to Cognition we are still left with the last duality that applies to our level. Let's continue using the hypothetico-inductive method because, as Hartmann wrote, "the categories [of the new ontology] must be attained by induction" (Hartmann 1953: 60). Unfortunately, he also told us, echoing Scheler's crisis regarding the problem of man, that categorial analysis was a young science, "especially in regards to the higher strata, it can as yet hardly record results worth mentioning" (Ibid: 63). So where do we find this duality if we are so behind in the knowledge of ourselves? The "science of man", to use Scheler's expression, is virtually absent in our time, mainly because the dualisms of modern and contemporary philosophy have hidden from our sight the duality intrinsic to one of the territories of reality: the *Inner-Outer Duality intrinsic to Consciousness*. Indeed, by separating the inner from the outer, these dualisms have created two artificial boundaries of reality that dominate science: the natural world (natural sciences) and the social world (social sciences). This is why I believe that they are pseudo-ontologies.

Maybe a few diagrams will suffice to explain what I mean; they say that "a picture is worth a thousand words".

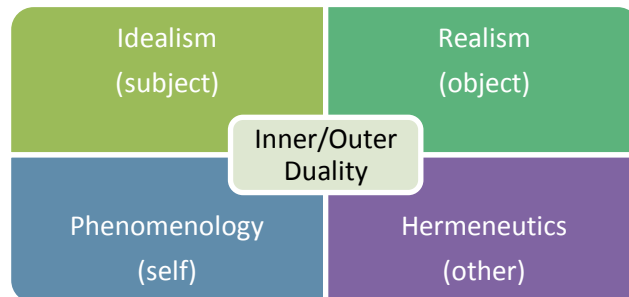


Diagram 6. Dualisms splitting Inner/Outer Duality

Indeed, are these the same dualisms we found embodied in Western epistemologies? And what were the pseudo-ontologies derived from those epistemologies?

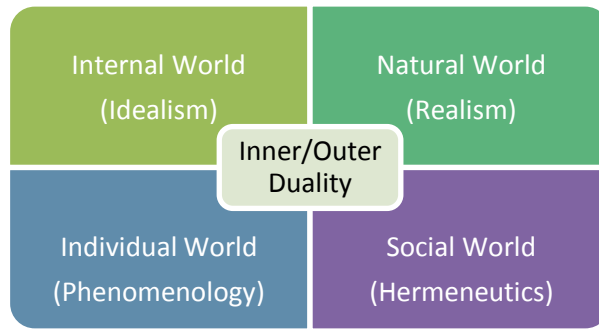


Diagram 7. Pseudo-Ontologies derived from Western Epistemologies

Furthermore, we could even use a table showing the concepts implicit in Western epistemologies (Table 16).

Object (outer)	Subject (inner)	Self (inner)	Other (outer)
Body	Mind	Individual	Social
Spatial	Non-spatial	Non-temporal	Temporal
Material	Mental	Subjective	Intersubjective
Real	Ideal	Intentional	Linguistic

Table 16. Concepts implicit in Western Epistemologies

Moreover, these concepts not only prove that modern and contemporary epistemologies have separated the inner from the outer, but also my point that *the metaphysical dualism is still implicit in Western thought: Spirit (non-spatial and non-temporal)-Matter (spatial and temporal)*. Another interesting and paradoxical fact regarding our intrinsic duality is that Hartmann even wrote that “the very life of man consists of an inseparable merging of *the inner and the outer*” (my emphasis, 1953: 25). However, contrary to his own advice of avoiding the transfer of categories from one ontological level to another, he claimed that the inner and the outer was a “fundamental category”¹¹ common to all the boundaries of the reality and “on them depends the interrelatedness of the ontological strata” (Ibid: 65).

¹¹ The fundamental categories that Hartmann identified as common to all strata are the following: unity and multiplicity, concord and discord, contrast and dimension, discretion and continuity, substratum and relation, element and structure, form and material, inner and outer, and finally, determination and dependence. This last category will be crucial to understand the interrelatedness’ between the ontological levels of reality (Hartmann 1940).

So far we have witnessed the typical error of transferring categories of being from one ontological sphere to another sphere motivated by the monistic tendencies denounced by Hartmann (1940) in order to find a universal principle to explain the unity of the universe. In fact, this is why GST seems to me nothing but an attempt to reduce all categories of being to fundamental categories that apply to all ontological levels of reality. But as we saw monistic tendencies, such as the organismic philosophy, are also pervasive in the field of systems thinking. Evolution may apply to a particular boundary of reality, indeed, but we cannot generalize it to the rest of the universe. Much like the attempts of transferring cognition to the live are also illegitimate. Similarly, we cannot transfer an ontological level that only applies to us to the rest of the universe, since that would be anthropocentric. So, from our ontological findings, what are the resulting boundaries of the universe so far? (Table 17)

Ontological Levels	Dualities
Consciousness	Inner-Outer
Cognition	Autonomy-Control
Life	Differentiation-Integration
Matter	Attraction-Repulsion

Table 17. Dualities of Being defining Ontological Levels

Very interesting, we have discovered the four boundaries of the reality. But how are the multiple ontological levels interrelated if we live in one single reality and not mutually independent territories of reality? If you remember, this was another of my secondary questions to ground multi-method systemic interventions.

Section 6

The Relationship between Ontological Levels

We will start and end this section with a discussion of Hartmann's two structural laws that explain the relationship between strata of categories and, as he claims, the unity of the world; namely, the *law of return* and the *law of dependence*. So let us start with the former and leave the latter to the end of our discussion. To do so, we need to introduce the matter-form dualism to understand the stratification relationship between groups of categories.

All we know so far is that the strata of reality rest on top of each other: the spiritual on consciousness; consciousness on the organism; and the organism on matter. This is the superposition relation of the stratified universe. However, "in this superposition it is always the inferior degree the material of the superior, this, on the other hand, the form of the inferior" (1959: 258). This is the so-called *relation of overconformation* between strata which means that all the categories from the lower stratum recur in the higher stratum.

However, this is not always the case, since new categories do emerge at higher strata and others from lower strata don't recur. This starts to happen, in particular, in relation to the psychophysical division. In this case, "the psychic cannot be composed of formation from the inorganic, neither from the organic" (1961: 124). At this point of the superposition of strata, the relation of overconformation breaks down because the matter-form relation between strata is interrupted. This is the co-called *relation of overconstruction* between strata, which means that a new substrate emerges at the higher stratum that was absent in the lower stratum, so the higher stratum doesn't take the lower stratum as its matter.

Furthermore, this also happens between the formations within the spiritual strata:

"The overconstruction relation in the fabric of the real world is not restricted to the division line of the psychic and organic being. It appears even higher up and several times and not merely on the very

same limits of strata, but also within the strata, in the relation between particular grades" (1961: 530).

Among the categories that disappear above the psychophysical line, Hartmann mentions spatiality and material substantiality: that is, the substrate of nature. Yet, I find it difficult to hold to the superposition relation between strata when the overconstruction relation enters the fabric of the real world, since I cannot conceive how something immaterial can rest on top of something material, even less something immaterial on top of something of the same kind. However, Hartmann claims in this case the inferior is the *foundation* of the superior, but not as its matter.

Still, how can something immaterial be 'founded on' something immaterial? Maybe the geological analogy of the bedrock layers is only useful for the lower strata of the universe. Anyway, even if the geological analogy is ill suited, the relation of being 'founded on' does bring new insights since it also implies the idea that one strata '*depends on*' another one, even though it is still difficult to imagine something non-spatial and immaterial depending on something spatial and material. Before we come back to this point, let's see how Hartmann's universe looks like in order to get a better idea of that relationship between strata.

"The tiers of reality form a stratified order not only within the unity of the world but also in the actual structures of the higher layers, in such a fashion that the lower strata are always included in the higher ones. And this relation obviously cannot be reversed. The organism cannot exist without atoms and molecules, but these can exist without the organism. So the human being contains within himself all strata of being, and it is an empty abstraction to regard him only as a spiritual being" (1953: 49-50).

There is something here that doesn't seem to follow from the overconstruction relation between strata. If, for every strata of reality, there is a corresponding strata of categories and some categories don't recur at higher strata, how can Hartmann say that "lower strata are always included in higher ones"? That is, the overconformation relation allows the categories of the lower strata to pass to the upper stratum, but the overconstruction relation "operates, instead, as a filter: it

allows only certain categories to pass to the upper stratum, eliminating the remaining” (1959: 532). Therefore, how can he claim that higher strata include lower strata, if some categories don’t make it to the higher strata? Again, maybe Hartmann is confusing strata with formations, since higher formations always include lower strata.

Well, Hartmann has a way out of this contradiction with the proper formulation of the *law of return*: “the penetration of categories from one stratum into another only takes place upwards, but not downwards” (Ibid: 532). This means that, since the categories of the higher strata don’t recur in lower strata, the higher strata always includes the lower strata. However, to my understanding, Hartmann is confusing strata with formations. It is one thing to say, for instance, that the spiritual being always includes lower strata, and quite another to say that “lower strata are always included in higher ones”. The spiritual being can be a stratified microcosm but the spiritual stratum doesn’t include the lower strata.

However, maybe the way out of this contradiction is simply not see the ontological levels of the universe as moving from one place to another, but as always occupying the same place. The above statement follows from my world-hypothesis; if the structure of the universe is *immutable*, this means that ontological levels don’t move upwards or downwards. Indeed, ontological levels always occupy the same place; that is, the entire universe forever, because the structure of the universe is *infinite* and *eternal*, according to my world-hypothesis.

So, as it turns out, maybe we don’t need Hartmann’s law of return to understand the relationship between ontological levels. Let’s see if the *law of dependence* fares better. As we saw, besides the idea of ‘resting’ one strata on another, Hartmann had the idea of one strata ‘depending on’ another strata. However, if higher levels presuppose and depend on lower levels, how come higher levels seem to be autonomous from lower levels? Can we have both autonomy and dependence? It may seem paradoxical, but Hartmann certainly believed it is not only possible but necessary for freedom itself. Indeed, each stratum of reality has its own determination.

Indeed, “freedom enters whenever a categorical novelty enters. Free is every higher determination which raises itself above a lower one. In a world of only one stratum, freedom is impossible” (Ibid: 121). Moreover, “where a higher stratum

rears itself above a thoroughly determined lower one, it brings its own determination with it without suspending that of the lower stratum (Ibid: 128). What Hartmann meant is that even if higher levels depend on lower levels, higher levels are still autonomous in relation to lower levels. In his own words, “at every level there is a fresh “autonomy in dependence” (Ibid: 129).

Very clever! Except for the lowest level, we can still have autonomous levels that depend on lower levels. In fact, if the inorganic strata had a lower level underneath it, it could also be autonomous. But how can all levels be autonomous, except for the lowest that enables the “freedom in the stratified structure of the world” (Ibid: 124)? Obviously, they cannot all be autonomous at once; that is, simultaneously. There must be a sense of autonomy that we are missing. Indeed, Hartmann ruled out downwards causation, altogether; lower strata enable freedom in the higher strata, but lower strata are also autonomous in their own way because each level has its own determination. The only thing we know from Hartmann is that higher levels do not suspend lower levels; lower levels could therefore, continue acting autonomously without any higher level intervention. In fact, according to Hartmann, the *determination and dependence* is a structural category that explains the relationship between the strata of reality. However, how can we explain the unity of systems through the multiplicity of dependent and autonomous strata? How come autonomous strata integrated in a system can act as one single being; that is, as one and not as a many? Acknowledging this problem, Hartmann argued:

“It must be understood that the deepest heterogeneity does not preclude the unity of essential interrelatedness, both in regards to a single strata of the actual structures as well as in regards to the world. Yes, even the converse might be the case: The forms of unity might rise to a higher level along the increase in the multiplicity and heterogeneity. Indeed, it might be that the higher structures (such as man and society) are precisely the forms of a higher unity” (Ibid: 50).

However, it doesn't really matter how “high” the multiplicity appears in the fabric of the real world, higher and lower multiplicity does not imply higher and lower unity, meaning that a man is more of a unity than an animal because it has more multiplicity. No, multiplicity does not explain unity. We are left with one of those

unresolved enigmas that the field of systems thinking dismisses assuming downwards causation, that is, that higher systems determine lower systems, but that, in turn, rules out the autonomy of lower ontological levels altogether, especially if Miller's (1978) decider concentrates all the power, like Plato's philosopher king.

Though Hartmann was reluctant to introduce downwards causation in order to explain the relationship between the strata of reality, some passages suggest otherwise. The spiritual stratum, for instance, can intervene in the strata of nature:

“What the spirit prescribes to nature are but the purposes which it pursues in utilizing the forces of nature as available means [...] It can only exploit their own natural functioning for its purposes [...] used as means towards purposes alien to them” (Hartmann 1953: 102).

In this case, I believe that he is confusing the relationship between strata with the relationship between formations, as the following passage confirms.

“The organic process intervenes downwards in the existence of inorganic nature (for example, the development of plants in the configuration of the soil and the climate); Thus, the spiritual being extends, in the form of a will and action directed by purposes, downwards, towards what is purposeless by its nature (wherever man profits for his purposes from the given natural forces)” (1956: 247-248)

Despite mixing up strata with formations, Hartmann was trying to explain the autonomy of formations by means of the “autonomy in the dependence” relationship between strata. However, do we need to justify the autonomy of strata to justify the autonomy of formations? Is the universe autonomous because higher ontological levels are autonomous from lower ontological levels? On the contrary, I believe that the autonomy of the universe comes from the mutual dependence of its ontological levels. Yet, Hartmann believes that there is only autonomy in the universe if the new categories emerging at higher strata are independent from lower strata.

However, let's look closer into Hartmann's "autonomy in dependence" relation by introducing his law of dependence to see whether it helps explain the autonomy of the universe. In the following I will argue otherwise, since the dependence between strata is not mutual, higher strata "depend on" lower strata but lower strata are "independent from" higher strata. In short, without a mutual dependence between ontological levels there is no autonomous universe. Furthermore, I will also argue that the law of dependence doesn't help to explain the unity of the universe either. In particular, if new categories emerge as a new substrate at higher strata, the world would appear as divided into independent territories of reality.

But to prove so, let's turn to Hartmann's formulation of the law of dependence by means of the following four laws.

"1. The law of force [...] The categorial dependence rules, thus, only from the inferior to the superior, but not the other way round [...] the inferior categories are in relation to the other strata always the strongest" (1959: 565).

In other words, there is a *unilateral dependence* 'from below', that is, no mutual dependence between strata.

"2. The law of indifference. The inferior stratum of categories is without doubt the base of the superior [but] even without the superior stratum it is still a stratum with principles autonomously predetermining" (Ibid.).

This means that the inferior stratum has its own predetermination 'independent from' higher strata. As he writes in another place, "the different strata are predeterminedly closed. Each of them is also saturated by the real nexus that dominates it. It is predetermined by him from one end to the other" (1956: 247). It is clear that Hartmann's concept of autonomy as predetermination is related to necessity rather than possibility.

"3. The law of matter [...] where there is return and overconformation the inferior category is only "matter" for the superior [but] where the upper stratum of categories only overconstructs the inferior, the latter is not even matter, but merely

the foundation of being; which reduces even more its influence”
(1959: 566).

In short, above the psychophysical line, strata become more autonomous from, and less dependent on, lower strata. However, as was mentioned earlier, how can something immaterial and non-spatial be dependent on something material and non-spatial?

“4. Law of freedom [...] The superior categories are [...] necessarily “free” (autonomous) in their *novum* in relation to the inferior ones [...] Free is only the weakest in relation to the strongest” (Ibid: 566).

That is, “higher categories are autonomous in relation to the lower in what they have of peculiar (its *novum*)” (Ibid: 593). This means that autonomy always happens on top of lower categories and only applies to the new categories that emerge, but not to the categories that recur, from the lower strata. The lowest strata, the material strata, cannot be autonomous because it doesn’t stand on top of another stratum. It is predetermined, indeed, but not independent from lower strata. Thus, we can see how Hartmann is not consistent with the concept of autonomy: sometimes it means predetermination and other times independence.

In summary, law one and two refer to the dependence of higher on lower strata, and law three and four to the independence of higher from lower strata. In the first case, there is unilateral dependence between strata because lower strata are independent from higher strata. However, how can the higher stratum be autonomous if the lower stratum is indifferent to it? Unless the lower and higher strata are mutually dependent I cannot see how we can justify the autonomy of the universe. In the second case, the higher strata are independent from the lower strata as regards the *novum*, which is not dependent on matter. However, if the world has new independent substrates emerging out of lower strata, is it still *one* universe or *two* worlds, the immaterial and the material worlds? As it turns out, Hartmann’s “autonomy in dependence” looks more like “independence in dependence” between Spirit and Matter.

So let us close this section with some remarks about Hartmann’s universe. Is a predetermined universe an autonomous or a deterministic universe? According to Hartmann, predetermination is different from determinism. “Undoubtedly, it

would mean determinism as regards the whole of the real world, if there was only single type of predetermination, that is, if the world wasn't stratified, nor the different strata have their own forms of nexus" (1956: 251). This could be the case if there was only one type of predetermination ruling the universe such as the causal or the final nexus. "In a world of a single stratum with a single type of predetermination freedom is impossible" (Ibid: 623). But Hartmann argues that multiple types of predetermination preclude determinism. However, in my opinion, a predetermined universe with multiple types of predetermination is not an autonomous universe because everything happens necessarily. "In the sphere of the real everything that is effective is also necessarily because of a complete chain of conditions" (1959: 341).

After having dealt with Hartmann's predetermined universe and argued against its lack of autonomy and unity, it is time to unfold further my world-hypothesis to explain the following enigma: how does a universe with multiple ontological levels act as one single universe and not as four independent territories of reality?

Section 7

The Unity of Being

In order to deal with the enigma of "autonomy in dependence", let's introduce another philosopher who really wrestled with this problem in his posthumously published writings devoted to metaphysics and philosophical anthropology, Max Scheler.

Impulsive Nature versus Purposeful Spirit

If we remember, Scheler (2008) struggled with two substances which do not conform to the traditional Matter-Spirit Dualism, but more precisely with Life-Spirit Dualism. These two antagonistic substances interpenetrate the entire universe, the impulsive Nature blending together with the disinterested Mind. Man, as a microcosm of the universe, of course, was not immune to, and actually integrates, both tensions.

However, according to Scheler, Mind lacked activity and force, since all energy comes from Nature. Therefore, he claims Spirit unfolds through Life in coming-to-be. He presents quite an obscure metaphysical system, to be honest, but the thing is that like Hartmann, Scheler believed that lower levels are the most powerful and that higher levels depend on the energy rising from lower levels. Moreover, “nature’s impulses are more in conflict the lower in the scheme of things they are” (2008: 334). However, unlike Hartmann who believed that there are no causal interaction between the strata, Scheler was ambivalent as to what kind of causality existed between the Mind and Nature, or within Nature itself.

Let’s first introduce Scheler’s ontology informed by his dualistic metaphysics. Nature is, in turn, according to Scheler, divided into two realms, the physical and the organic-psychical worlds. On the one hand, we have the physical world occupied by what he called a “centre of forces” ruled by physical laws which has no being as such because physical things have no interiority, according to Scheler. Then comes the organic-psychical world populated by “life-centres” where, as we saw earlier, Scheler conflates the biological with the cognitive levels, saying that the “life centre is also an experiencing centre insofar as it is inwardness [or that] the psychic [is] the inwardness of a living creature” (2008: 172-173). Furthermore, the life-centre has two kinds of psychic experiences. On the one hand, psychic experiences related to the life-centre, such as representations or feelings. And on the other hand, there are psychic experiences not related to the life-centre, such as objects from the environment. Whereas the former have an internal source, the latter have an external source. In short, the life-centre has experiences of both psychical phenomena and physical phenomena. So we have the “centre of forces” (inorganic world) and the “life-centre” (psycho-organic world) that make up Nature. What about Spirit? Who populates the Spirit? Well, in this case, it is an ontological being that transcends Nature; namely, the “*person centre*”. “The person is the concrete and essential unity of being of acts of different essences [...] the “foundation” of all essentially different acts” (1973: 383).

The person is not an *object* of experience, “the only and exclusive kind of givenness of the person is his execution of acts” (Ibid: 387). Therefore, according to Scheler, “psychology is a science of “happenings”, happenings in inner perception, not acts and person, these remain transcendent to psychology” (Ibid: 387).

In differentiating between person acts and psychic functions,

“All functions are ego-functions; they never belong to the sphere of the person. Functions are psychic; acts are non-psychic. Acts are executed; functions happen by themselves. Functions necessary require a lived body” (Ibid: 388).

And making use of Husserl’s concept of intentional acts (acts of consciousness always *directed towards* an object), Scheler wrote

“It belongs to the essence of the person to exist and to live solely in the execution of intentional acts. [However,] the person is essentially never an “object”. On the contrary, any objectifying attitude (be it perception, representation, thinking, remembering or expectation) makes the person immediately transcendent” (Ibid: 390).

Finally,

“Psychic experience is automatic, in the sense of being spontaneous but not free; it arises on its own, comes and goes, and carries on in its own way, now like this, now like that. Mental acts, in contrast, do not carry on in this way, but *we* carry them out, and from a different centre. We carry them out from the person centre, and not the life centre where psychic experience is generated” (2008: 172).

Therefore, the *person is a free act centre that executes intentional acts directed towards objects.*

Despite that freedom, however, the highest level still depends on the energy from lower levels. Thus, strictly speaking, downward causation is not possible because higher levels don’t have any power of their own but derived their power from lower levels instead. However, Scheler seems to accept the fact that higher levels have no force over lower levels but maybe they have a more powerful “force”, namely, *direction*.

Similarly, Hartmann also discussed the highest strata, the Spirit, which prescribes its purposes to a purposeless Nature using its force and activity as a means to achieve them. In fact, only the person could prescribe purposes since teleology existed nowhere else in the universe except for that form of the Spirit. Despite its

“power” to prescribe purposes to nature, Hartmann also tells us that higher strata cannot suspend the functioning of lower strata. Thus, the fact that nature could follow the purposes of the highest strata, the spirit, seems even more problematic given that nature doesn’t follow any goal because Hartmann doesn’t believe in a teleological nature.

Yet, Scheler did go this way. Indeed, for him Nature and Spirit are goal-directed realms; in Nature goals come from impulses where conflicts between lower levels happen, and in Spirit the goals are disinterested. But how can higher levels and lower levels pursue conflicting goals? Moreover, how can higher levels influence lower levels if they have no force and all their energy is derived from lower levels?

According to Scheler,

“Reaching the goal of some whole entity is dependent on the goal-directness of its parts. But the latter are not originally tied up with the former, in the sense of sharing some teleological principle. Therefore, although the goal of the entity as a whole can be set out, what comes to pass depends continually on the goal-directness of its parts” (Ibid: 334).

Then, it is quite a miracle that higher levels ever achieve their goals, since that can only happen by chance when there is a coincidence of goals between ontological levels, but we know that that coincidence is even rarer at the lowest levels where the degree of conflict between impulses is the highest. It seems that if pure conflict and pure force rest at the bottom, pure harmony between ontological levels at the top is a utopia.

To solve this riddle, Scheler introduces a special kind of influence or causality to try to explain how an alignment between goals may be possible to a certain degree: “Mind can indirectly affect vital events. It can do so through *inhibiting and disinhibiting* the drive impulses and also by *stabilizing* cultural works” (my emphasis, Ibid: 189). This is a very interesting form of influence over drive impulses, indeed. Apparently, the person-centre and the life-centre have veto powers, a kind of indirect causal interaction. “As in the case of the person, there is no equal interaction: either the life centre exerts its veto, or it does not [by ‘saying’ no, or not so saying]” (Ibid: 158). Moreover, culture also has a stabilizing

influence over nature. “The lower determinants have force, whereas the higher determinants only have idea [and yet the latter are the more powerful]” (Ibid: 163).

To explain this indirect effect of culture over nature, Scheler uses what he calls “the isomorphic analogy of mind”, using the analogy of the conductor of the orchestra. In fact, the orchestra is playing a Beethoven symphony,

“Played by an orchestra under the guidance of a conductor, and performed by a number of musicians and their instruments. The entire experience, which we hear and enjoy, has five principle components, with completely different sorts of causal sources” (Ibid: 161).

Concluding that, the *direction* of what determines what along the chain is composer, conductor, musicians, instruments, airwaves, and not the reverse order. There is *no interaction* at play at any point in the chain” (my emphasis, Ibid: 162).

As we can see, Scheler was reluctant to accept a standard causal interaction between ontological levels, especially any kind of downward causality of the person centre over the life-centre and the life-centre, in turn, over the centre of forces. However, he did mention “that there is a three-fold causality and a three-fold parallelism: natural forces- life agency-mind” (Ibid: 139). What Scheler meant was that the higher levels directed or steered the lower levels by means of inhibiting and disinhibiting the activity of lower levels, as we saw.

However, again, this implies that all levels are goal directed, that there is agency at every level of being; that is, autonomy to pursue different and even conflicting goals. So again we are left with the same conundrum. How can there be a unification of goals at different levels for a system to act as one? Well, Scheler found the solution in Mind since the reconciliation of Nature with its conflicting impulses seemed impossible. However, he didn’t completely give up on Nature, postulating a possible unification of impulses: “Force and drive-centres-or vital centres- are the two classes of impulses that we know about. Whether they continually merge with one another or not, we do not know” (Ibid: 335).

However, Scheler rules out this possibility because it didn't make sense under his metaphysical antagonism between Spirit and Life; the impulsive and spiritless Nature against the disinterested and lifeless Mind.

According to him,

“The only sort of unit [or unified center] which is more than a functional unification of goals and cooperation is that [instigated by spirit] which comes about through inhibited *Nature*. If it is in a state of disinhibition, it is a layered realm of different sorts of impulses” (Ibid: 335).

Instead, coherence could only come from a '*Revolution*' in the cosmos that could inhibit Nature; namely, Mind.

That is,

“A [superordinate] goal-directedness can only achieve correspondence with its appropriate, subordinate goal-directedness by inhibiting and disinhibiting such [...] The disinhibition of Nature [...] results in an order being set up from the lower to the higher [...] Autonomous energy diminishes the higher in the scheme the goal-directed agent is, until we reach the limit of spirit, where it becomes, as will, nothing at all, except, in a negative sense, as mere inhibition and disinhibition [of lower agencies]” (Ibid: 334-335).

What is “The Revolution” called Mind?

“In short, it consists in the consciousness, which in animals serves the exigencies of life, now becoming the *master* of that life; it consists in the means, whereby an animal's life is maintained and promoted, now becoming its own self-perpetuating goal or end [...] Treating this organic life that is has left behind- with all its tendencies, drives and needs-as automatically *servicing itself*, mind, and the will of its mind's disinterested aims and values” (my emphasis, Ibid :138).

So now Life serves its master, Mind, which uses Nature's impulses to perpetuate its own disinterested aims and values through Culture.

Furthermore, Scheler can avoid describing “the human being [as] the place in the cosmos through which all forms of [...] life lose their own indeterminate control over themselves, and simply serve an overriding principle, which we call the mind” (Ibid: 138). Astonishing movie, isn't it? And then Mind came to save the universe... Very messianic!

What this fabulous story tells is that the unification of goals among levels could only happen thanks to the miraculous appearance of Mind. Everything was waiting in a state of chaos when Nature was alone, mutually conflicting impulses reigned over the cosmos, until Mind came to disinhibit and control Nature's impulses to achieve its own purposes. However, that also means that the ontological levels in Nature, namely, the inorganic and psycho-organic worlds cannot be integrated in a system and act as one, because each level is driven by conflicting impulses. Therefore, the unification of goals between lower-level agencies seems impossible unless an arbiter comes along, Mind, and puts some order into that conflict by means of disinhibiting or suspending the activity of those levels that contradict its own purposes.

However, it seems that Mind interpenetrates all of Nature,

“In a similar way to how the life-centre and the animal psyche concentrate the physical and chemical forces which surround it in a temporal fashion to foster its, the life-centre's or animal psyche's, aims, so the mental soul-the mind- directs and steers the living agent [life-centre, animal psyche] to promote its-the mind's goals” (Ibid: 138).

Therefore, according to Scheler Mind's power irradiates down having an influence over all the realms of Nature. In a judo fighting style, Mind uses Nature's energy against itself, and the natural forces of Nature are now dominated by the spiritual power of the Mind. An incredible movie, indeed! However, despite its infinite power that penetrates all Nature, Scheler remind that

“The mind has no direct effect on life. It only holds up ideas, values and projects to the vital psychic stream of events, and through its will inhibits or disinhibits the drive impulses. In this way it can influence the course of life's events and also physiological events” (Ibid: 188).

In fact, if it wasn't for the fact that Scheler's didn't deny being to Nature as a whole, but only to the inorganic world, ideas and values would remind me a little of Plato's forms that populate the Realm of Spirit which are the cause of the Realm of Nature. Unlike Plato, however, he didn't postulate another reality to explain the existing universe and didn't attribute mind-independent powers to ideas or values. However, Scheler did attribute causal powers to ideas and values embodied in Culture as a "Group Mind".

In fact, Scheler attributed personality to culture, calling it a *collective person*, similarly to the personality attributed to individual humans. So far so good, if it wasn't that his sociology assumed the dualism between the Self and the Other, that is, between a subjective reality and an intersubjective reality, as we will see later on.

Let us finish with a beautiful quote from Scheler before discussing the solutions to the "autonomy in dependence" enigma between ontological levels:

"The mind 'is' something [that] carries out acts [which] possess a final goal whose direction has nothing to do with any values belonging to life, but with truth, beauty and goodness, for example, and with devotion to God" (Ibid: 155).

Multiplicity of Being versus Unity of Being

Let's compare Hartmann's (1953) and Scheler's (2008) solution. How can a system act as *one* if it's an integrated multiplicity of autonomous levels? How can a multiplicity act as a unity? According to Hartmann, the unity of a being is achieved at higher levels because greater integration of multiplicity ensures greater unity of multiplicity. Integration explains unity, more integration more unity, and less integration less unity. Thus, higher levels are more integrated than lower levels because they integrate more multiplicity. Whereas the organic stratum integrates the inorganic (that is, two strata), the psychic stratum integrates the organic and the inorganic strata (that is, three strata), which means that the psychic stratum has more unity than the organic stratum because it host more multiplicity. However, the organic and the psychic strata have less unity than the spirit strata because the spirit stratum integrates all the four strata, having the highest degree

of unity and multiplicity. Therefore, true unity of being is only achieved by the spiritual strata. Moreover, since the human being is the only purposeful being, according to Hartmann, only a human being can give his purposes to nature and utilize nature's forces as a means to pursue his own goals which are alien to nature. The purposeless forces of nature give way to the purposeful powers of spirit. Again, the energy vested in lower levels is used by higher levels to direct lower levels without inhibiting their activity. But we cannot help asking, how can lower levels be directed by the highest level, if each new stratum has its own determination?

In the case of Scheler, the solution to the enigma of unity of being is the Mind. Until the Mind appeared Nature's impulses were in a state of chaos; like the *Book of Genesis*, nothing ruled over them. In fact, it seems that natural forces must have ruled over the life agency because the inorganic world had more energy; therefore, there was disunity of being. However, that changed with 'The Revolution': Mind not only directed Nature's impulses by inhibiting and disinhibiting lower level agencies, but in turn, the life-centre could control the centres of forces by inhibiting and disinhibiting its natural forces. Therefore, now the life-centre was no longer ruled by the centre of forces, the psycho-organic level could direct the inorganic level. So, the wild multiplicity of lower levels of Nature could give way to the inhibition of subordinated agencies that contradicted superordinate goals prescribed by the Mind. Nature's agency or impulses could be inhibited by Mind. Therefore, Scheler's answer to the "autonomy in dependence" dilemma was in fact not autonomy per se but controlled autonomy.

Both Hartmann and Scheler agreed that the spirit has determination or freedom, but no energy of its own to pursue its ends. For Scheler, however, the spirit, besides tapping into nature's energy and using its drives for its own goals, as Hartmann believes, can also inhibit Nature's impulses whenever its goals contradicted its ends. In both cases, the unity of being was a mystery that could only be solved at the spirit level, since this is the only level that can inhibit or give goals to lower levels. For Hartmann, the "autonomy in dependence" relationship was very clever to explain how higher levels depended on lower levels in order to be autonomous, but didn't quite explain the unity of being. Giving purposes to nature at the highest level of being, the spirit, doesn't explain how systems with

multiple levels act as one. Scheler, instead, preferred to use Mind's vetoing power to direct nature towards its purposes. Whereas Hartmann stresses the autonomy of all ontological levels in the universe, except for the inorganic world, Scheler stresses the Mind's control over Nature's ontological levels.

We are left with an uneasy feeling since the unity of being seems a complicated question that defies any philosophical solution. I have to say, besides Hartmann and Scheler I've known of no other philosophers who have struggled so hard to try to understand how the universe's plurality works together without falling back to monistic universe in the name of unity. They couldn't trade the multiplicity of being for the unity of being, so they preferred to stress the integration of multiple ontological levels at the spirit level, giving up on explaining the unity of being at lower levels.

All Ontological Levels Directed by One Will

With the benefit of hindsight I will try do my best to explain the unity of being that I believe exists in all beings, not only spiritual beings, as Hartmann and Scheler believed. Again, to do so, I will use my world-hypothesis to see if it brings any new light into the mystery of the unity of being; that is, how come a system with multiple levels can act as one single being? My short answer is this: *a system acts as one being because it has one will and not multiple wills.*

According to Scheler, "in a state of disinhibition, [nature] is a layered realm of different sorts of impulses" and therefore "the only sort of unit [or unified center] which is possible is more than a functional unification of goals and cooperation is that [instigated by spirit] which comes about through inhibited *Nature*" (2008: 335). But what if instead of a layered realm of impulses driving the vital centres, there was a single will driving the entire multiplicity of levels? What if the goal-directness displayed by all ontological levels came from one will? Well, according to my world-hypothesis, the universe is caused by its own will? So, why wouldn't all the ontological levels act as one single being?

Therefore, we don't need a spirit to come into the universe to direct lower levels in order to achieve its superordinate goals. Neither do we need a spirit to prescribe purposes to nature and utilize its energies to pursue its own ends which

are alien to nature. Scheler was right in believing that *all ontological levels are goal-directed*, indeed, but that doesn't mean that we need to postulate a superordinate goal-directness to unify a subordinate goal-directness by means of inhibiting nature. Nature is not subordinated to Mind. Full stop! Instead, *the multiple ontological levels are all directed by one will*.

So, there is no Life coming into the picture introducing a second will, one directing the inorganic and one directing the organic level, neither Cognition nor Consciousness come into existence adding a third or fourth will to a being. Rather, one and the same will is present in all ontological levels. Another implication is that conflict takes place only between beings but never between ontological levels in a being. Therefore, there is no conflict between the ontological levels of Nature in a psycho-organic being. This means that the unity of being also happens at the lower levels of being, contrary to what Hartmann and Scheler thought. In addition, Hartmann was also right in claiming that there was no causal interaction between ontological levels but wrong in claiming a unilateral dependence "from below" instead of a mutual dependence. This has tremendous implications for systems philosophy because the ontological structure of the universe is not hierarchical. Therefore, *lower levels are neither subordinated to higher levels nor higher levels to lower levels because there is a mutual dependence between ontological levels*. Doesn't this world-hypothesis make more sense rather than assuming a unilateral dependence "from below"?

All Beings Endowed with an Individual Will

One might wonder, if all ontological levels are goal-directed, how multiple impulses, desires or appetites can avoid entering into conflict with one another, as Scheler believed. Indeed, for him, the conflict of impulses at the level of Nature could only be resolved at the level of Mind, by inhibiting Nature's impulses. The unification of goals between ontological orders could only come from an inhibiting Mind. However, if the Mind wanted to achieve its superordinate goals to self-perpetuate in Culture, can't inhibit Nature's impulses entirely, since it needs Nature's energy to fulfil its disinterested aims and goals. Therefore, it needs to exercise its vetoing powers, 'say no', when Nature's goals

contradict the Mind's goals and disinhibit, 'not say so', when Nature's goals contribute towards the Mind's goals.

Scheler was aware of this fact,

“Although the goal of the entity as a whole can be set out, what comes to pass depends continually on the goal-directness of its parts ... A [superordinate] goal-directness can only achieve correspondence with its appropriate, subordinate goal-directness by inhibiting and disinhibiting such. It can never completely divert them, nor create something from scratch in their absence. The sequence of inhibitions and disinhibitions has to take account of the extant set-up of lower goals, and make whatever job it can out of them” (2008: 334)

In the case of Hartmann, the unification of goals is not an issue since the spirit strata is the only one that can prescribe goals to nature and use its natural forces to achieve its purposes. All-powerful nature is purposeless.

But how can a multiple goal-directed system strive for all those goals at once? Well, our short answer is: *beings are self-determined by an individual will*. This is consistent with Schopenhauer, indeed, for him body acts and volitional acts were one and the same, so it really didn't matter whether it was an inorganic, organic, animal or human body, since all body acts are volitional acts. Therefore, that conclusion is easily derived from his Will-Body Identity thesis. However, unlike Schopenhauer, I'm arguing for an autonomous universe.

Indeed, according to Schopenhauer, all the manifestations of the will are *necessary* and cannot be contingent; that is, spontaneous. All body acts in the universe respond to strict necessity, like an *effect* follows necessary from a *cause*. “Every consequence of a ground is necessary, and every necessity is consequence of a ground” (2009:36). There is no room for freedom in the universe. “In one word: a human being does at all times only what he wills, and yet does it necessarily” (Ibid: 109).

In order to prove this is so, he accepted from Descartes (1637) and Kant (1781, 1787) the view of mechanistic universe derived from the founders of modern science, namely, Galileo and Newton. Nature follows strict necessary laws that science needs to discover to explain and predict any phenomena in the universe.

Therefore, the inorganic world is governed by natural laws. To formulate it using Kant's antinomy of freedom,

“Causality in accordance with laws of nature is not the only causality from which the appearances of the world can one and all be derived. To explain these appearances it is necessary to assume that there is also another causality, that of Spontaneity” (Kant 1999: 358).

Therefore, Schopenhauer assumes that all the manifestations in an inorganic world follow necessarily like an effect follows necessarily from a cause. However, though he accepts that we live in a deterministic universe, he didn't believe that *mechanical causality* was the only form of causality in the universe. He found other forms of causality in the universe, in the organic world it wasn't cause but *stimuli* that determine a *response* of living organisms and in the animal and human worlds, the form of causality was *motives* that determine a *behaviour*.

Of course, Descartes and Kant didn't go so far as to deny human freedom but couldn't explain how freedom was possible in a deterministic universe. Schopenhauer, however, was eager to prove that the human, like the animal worlds, were ruled by the same necessity as the rest of the universe. As we saw in Chapter 9, ontologically speaking, Schopenhauer claimed the Mind-Body Identity, which is not compatible the Subject-Object Dualism, and then the Will-Body Identity; that is, the identity between volitional acts and the body acts. Well, assuming a correspondence between both the subject and its character and the object and motive, he argued that “each deed of a human being is the necessary product of his *character* and of the *motive* that occurs. If these two are given, then it follows inevitably” (2009: 75). So, given a motive and an individual character, a body act will necessarily follow, as the effect necessarily follows the cause, according to Schopenhauer.

Moreover,

“The character of the human being is *constant*: it stays the same throughout the whole of life [...] *The human being never alters*: as he has acted in one case, so he will always act again in completely identical circumstances” (2009:70).

Therefore, the motive acted a representation (object) imprinted on the subject (character) that necessarily triggered a determined behaviour. This didn't mean, however, that we would all act in the same way given the same motive. No, on the contrary, what determined the particular behaviour was the individual character, unique to each person, albeit constant. That is, the motive merely activated or awakened a latent behaviour determined by the individual character.

“Motives do not determine man's character, but only the phenomenon or appearance of that character, that is, the deeds and actions, the external form of the course of his life, not its inner significance and content.” (1969: 138).

In fact, Schopenhauer believed that his philosophy complemented science:.

“The etiology and the philosophy of nature never interfere with each other; on the contrary, they go hand in hand, considering the same object from different points of view. Etiology gives an account of the causes which necessarily produce the particular phenomenon to be explained. It shows, as the basis of all its explanations, the universal forces that are active in all these causes and effects ... On the other hand, philosophy everywhere, and hence in nature also, considers the universal alone. Here the original forces themselves are its object, and it recognizes in them the different grades of the objectification of the will that is the inner nature, the in-itself, of this world” (Ibid: 141).

What remained occult to science was the underlining universal force behind all the manifestations in the universe subjected to the *law of nature*.

So, if a multiple goal-directed system acts as one because it has one will, does this mean we live in a deterministic universe? No, I don't think this is the case. If we give up on Schopenhauer's idea of one Will across the universe, the fact that something extrinsic triggers a change in a being proves that systems are self-determined. Indeed, we can say that the effects in material beings, responses in organic beings and behaviours in animals are not other-determined. Can we not say, in fact, that what Schopenhauer proves is the contrary, that all beings in the universe are self-determined?

This is in fact what Leibniz was claiming when he wrote that “the natural changes of the monad proceed from an *internal principle*. For an external cause cannot influence their inner make-up” (1991: 18). In fact, the active force in matter is derived from that internal principle. Well, to me, this internal principle, which I identify with an individual will, makes all beings in the universe autonomous. So, *all beings in the universe are self-determined by an individual will*. However, Schopenhauer denied so claiming that only human beings have an inborn individual will.

“In the inorganic body the essential and permanent element, that on which its identity and integrity rest, is the material, is *matter* [...] With the organic body the case is the very opposite; for its life, in other words its existence as something organic, consists simply in the constant change of the *material* with persistence of the *form*; thus its essence and identity lie in the *form* alone (1969: 296).

Does this remind you of Maturana’s (1972) autopoiesis theory explaining Life itself? We will say more about this theory in Chapter 17.

Let’s proceed with true individuality according to Schopenhauer (1818/1819),

“In the animals this individual character as a whole is lacking, since the species alone has a characteristic significance. This trace of the individual character fades away more and more, the farther we go from man. Finally, plants no longer have any individual characteristics save those that can be fully explained from the favourable or unfavourable external influences of soil, climate, and other contingencies. Finally, in the inorganic kingdom of nature all individuality completely disappears” (Ibid: 132).

On the contrary, if a human being has individuality it is because all beings in the universe have an individual will.

Section 8

Territories of Reality

The boundaries of knowledge should be dictated by the boundaries of reality and not the other way around, as modern science seems to be doing with its conflation of ontological levels. Even Schopenhauer, again prescient, warned us about this.

“It is indeed a mistake of natural science for it to try to refer the higher grades of the will's objectivity to lower ones [...] Therefore Kant is right when he says that it is absurd to hope for “the Newton of a blade of grass”, in other words, for the man who would reduce the blade of grass to phenomena of physical and chemical forces” (1969: 143).

Indeed, the Unity of Science advocated by the Vienna Circle is a utopia since we can't reduce all territories of reality to physics or chemistry. Likewise, we are witnessing the same in systems sciences; everything must be reduced to evolution, to Life itself, even Matter, but also Cognition. But the most worrying conflation is between Cognition and Consciousness, since we are not an epiphenomenon of Cognition.

Therefore, it goes without saying that besides denouncing the historical conflations between different territories of reality, we need to start differentiating the boundaries of reality before establishing the territories of science. I'm hoping that this endeavour will show how problematic is the distinction between the natural sciences and the social sciences or between the “*sciences of nature*” and “*sciences of spirit*” introduced by Dilthey (1883) in the 19th century. We're in the 21st century and we're still debating about the “Two Sciences” (Sciences of Nature vs Sciences of the Spirit), “Two Explanations” (Causal vs Meaningful), “Two Methodologies” (Positivist vs Interpretive)) and “Two Methods” (Quantitative vs Qualitative). Does all this make sense? Or are we witnessing the ‘Crisis of Science’ itself? (Diagram 8)

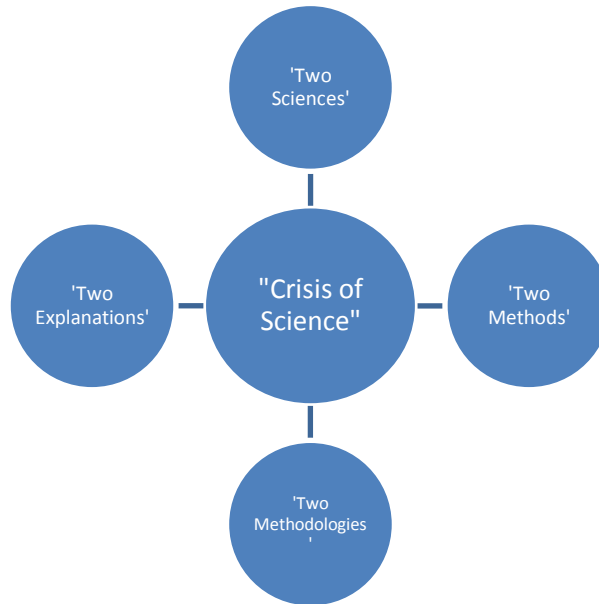


Diagram 8. Science Wars leading to the Crisis of Science

Cognition

Organicism is the root metaphor of the evolutionary paradigm that I claim dominates systems science today, conflating Life, Matter and Cognition. But what is Cognition? I'm happy that at least one of the founders of systems thinking understood the true nature of cognition, even though that insight has become a truism and his contribution has been overshadowed on the grounds that he didn't fully understand the nature of Life (Mingers 1995). Indeed, Life is different from Cognition. It's time to credit Bateson's major ontological contribution.

The essence of Bateson's understanding of mind is neatly distilled in a lecture he delivered in 1970 called *Form, Substance, and Difference*. The world Bateson was describing in that paper wasn't a world of forces that triggered effects, neither of stimuli that triggered responses, but one of "*differences*" that triggered behaviours.

"You enter a world in which "effects" - and I am not sure one should still use that same word- are brought about by *differences*. That is, they are brought about by the sort of "things" that sets onto the map from the territory. That is difference" (1987: 320).

In trying to unveil the process whereby the mind draws differences, Bateson wrote

“Within the piece of chalk, there is for every molecule an infinite number of *differences* between its location and the location in which it *might* have been. Of this infinitude, we select a very limited number which become information” (1987: 321).

From this quotation it is clear that, unlike Schopenhauer, Bateson wasn't an idealist, differences are not representations in the mind but real differences existing in the territory that might or might not get picked up in the map. Therefore, information is a difference that makes a difference for a mind, and if so, it will get picked up by the map otherwise it will remain in the territory. That means that “the map is not the territory”; another insight that has become a truism that few understand.

“We say the map is different from the territory? But what is the territory? [...] The territory never sets in at all [...] Always the process of representation which filters it out so that the mental world is only maps of maps of maps, ad infinitum” (1987: 322).

Expanding on the hierarchical nature of our maps,

“There are differences between differences. Every effective difference denotes a demarcation, a line of classification, and all classification is hierarchic. In other words, differences are themselves to be differentiated and classified” (1987: 324).

It is clever how he avoids reducing the cognitive world to reality, the map to the territory, and realizes that the cognitive system is the unit of Cognition. More impressive, however, is how he denies that the “mind is the head”, to paraphrase McCulloch's (1951) famous article. Indeed, the boundaries of the mind are not limited by the skin, “the individual mind is immanent but not only in the body. It is immanent also in pathways and messages outside the body” (Bateson 1987: 326). Therefore, cognitive systems are not in the brain but, in fact, beyond our minds. Another marvellous insight! So, does this mean that there are smaller minds contained in larger minds? Exactly, “we know that within Mind in the widest sense

there will be a hierarchy of sub-systems, any one of which we can call an individual mind" (Ibid: 325)

And with a tempered mysticism, "this larger Mind is comparable to God and is perhaps what some people mean by "God" but it is still immanent in the total interconnected social system and planetary ecology" (1987: 326). Bateson couldn't find many symbolisms to distinguish the nature of the world he had discovered. So he made use of Jung's difference between the *plenoma* and the *creature*, drawn from Gnosticism.

"The plenoma is the world in which events are caused by forces and impacts in which there are no "distinctions". Or, as I would say, no "differences". In the creature effects are brought about precisely by difference" (1987: 322).

In spite of the terms he used, the reality Bateson was referring to was clear. And another insight is that memory belongs to the cognitive world:

"I think it necessary to include the relevant parts of memory and data "banks" [in the individual mind] After all, the simplest cybernetic circuit can be said to have memory of a dynamic kind - not based upon static storage but upon the travel of information around the circuit" (1987: 325).

Indeed, I claim that Leibniz's (1714) perceptions in monads are Bateson's "differences" (1970) in cognitive systems. In Leibniz's case, perceptions triggered the changes determined by the monad's appetite and, for Bateson, similarly, "differences" trigger "behaviours" determined by the cognitive system.

Let's finish this introduction to Bateson's work with Bateson himself, commenting retrospectively on the implications of *Form, Substance and Difference*.

"In addition to [...] the familiar physical determinism which characterizes our universe, there is a mental determinism. The mental determinism is in no sense supernatural. The mental determinism is not transcendent but immanent" (1987: 329).

Indeed, similarly to Schopenhauer, Bateson was aware that if cognitive systems are triggered by "differences" that come from the "territory" (that is, external

events trigger internal changes), the mind is externally determined by the environment. However, as I argued earlier, to me, it proves the contrary, since all changes are self-determined even though they are extrinsically triggered. The last word comes from the individual will and, hence, it proves that if all internal changes are self-determined, then cognitive systems are also autonomous, like organic and inorganic systems.

So, who will guide us next into the intricacies of the *cognitive territory*? Well, we met him before, when introducing his metaphysics and philosophical anthropology. It is Scheler (1913-1916), but we encounter him now as a phenomenologist. Phenomenology is basically a form of inquiry in which what is given in consciousness is distilled to find the essences behind the empirical phenomena, a bit like Plato's forms except that essences are found in experience and don't belong to a supra-natural order. In the case of Scheler (1913-1916), however, the essences were not only ideas, like in Husserl (1900-1901), but also an a priori order of values immanent in the objects of experience themselves. Likewise, Scheler assumed the intentional character of consciousness that Husserl drew from Brentano (1874), that is, consciousness is directness or 'aboutness' since all acts of consciousness are directed towards something. All consciousness is always "consciousness of something" (Scheler 1973: 392).

However, Scheler's intentional acts of consciousness should not be confused with Descartes's rationalistic theory of the mind:

"Consciousness of something" is not only cogitare (in a Cartesian fashion), so that loving, hating, feeling, willing, and their own lawfulness have their foundation in the union of the person so defined (*res cognitans*) with a body" (1973: 392).

Basically, as we saw from his ontology, Scheler wanted to distance himself from the vision of a disembodied mind which separates the thinking mind from the feeling body.

Scheler was claiming that the acts of consciousness are not only about the thinking of something but also about the feeling of something, therefore, questioning the traditional notion of knowledge of ideas because we could also experience values. According to Scheler, there was an *a priori order of values*, that

is, a ranking of between different types of values, that we could experience through acts of feelings. Thus, he was expanding the realm of objects of experience to include values. Moreover, it was, in fact, the interrelation between the person and its body that enabled the access to the realm of values. He claimed that, without acts of feeling, we wouldn't be able to experience values, since the *person-centre* and the *life-centre* are interrelated through the *ego*, which is the psychic side of the experiencing life-centre. What he understood was that the nature of the mind penetrates down to the inwardness of the physical experiences and connects them with its own mental acts. In other words, when trying to understand the process whereby the mind experiences a value, Scheler realized that psychic functions merge with person acts. Maybe this early insight found in his *Ethics* already anticipated his future dualistic metaphysics, the interpenetration between the Mind and Life.

Anyway, although Scheler didn't distinguish clearly between Life and Cognition, he did start to perceive the difference that made a difference between Cognition and Consciousness, which will be crucial to distinguish those boundaries of reality. He clearly saw that values belonged to Consciousness (or the Mind, as he preferred to call it), but wasn't quite sure about feelings since they seem to start in Life, continue through Cognition and end up in Consciousness, judging from his hierarchy of values (Diagram 9).

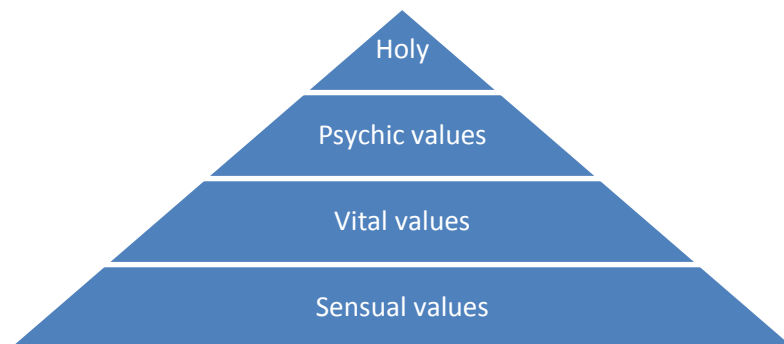


Diagram 9. Scheler's Order of Values

Regardless of whether feelings penetrate all the levels of being, the spiritual being is able to experience an a priori order of values through intentional acts of feeling. Moreover, Scheler chose to distinguish the acts of knowing, willing, feeling, loving and hating from the psychic functions of seeing, hearing, tasting, smelling, noticing or taking notice of. The former belongs to the person and the latter to

the ego. Nevertheless, Scheler saw that psychic experiences were different from conscious experiences. Indeed, the psychic world *appears* in Consciousness as an outer world, but at the same time the Person has its own inner world. As he says, “there is an individual world corresponding to every individual person” (1973: 393).

Therefore, Scheler is saying that the outer world that appears in Consciousness is the correlate of a subject, not a person, implying that there can only be objects for subjects, that is, all objects are given in consciousness. This is the Subject-Object Correlation found in Husserl’s (1900-1901) phenomenology. The Object is a correlate of the Subject; there are no objects without subjects since all consciousness is consciousness of something. Therefore, Scheler couldn’t quite separate Cognition from Consciousness. Moreover, the psychic world could only appear as something that is given in consciousness, since there is no world without a consciousness. That is why the cognitive world appeared as an outer world (object) for an internal consciousness (subject) because he was trapped by Husserl’s phenomenology. However, strictly speaking, cognitive systems don’t have an outer world; only a map of the territory which does not appear in the mind but is Cognition itself. The map and cognition are one and the same. In short, cognitive systems don’t have windows but mirrors that pick up “differences” from the territory. Therefore, cognitive experiences are “differences” from the territory that trigger an internal change determined by a cognitive system.

Perfect, the boundaries between Life and Cognition are clearly established! However, despite having drawn the boundaries of Cognition, we haven’t yet clarified what are the types of differences that make a difference in cognitive systems. What are types of information from the territory that get picked up by the map? In other words, what kinds of information do cognitive systems process? Well, although for Scheler, feelings penetrate all the levels of being but the act of feeling is an intentional act of consciousness, to me *feelings* are one of those “differences” from the territory that make a difference. Moreover, when Bateson discusses the parallel between the map and the territory, I think he has in mind Leibniz’s (1714) *perceptions*. In Scheler’s (1913-1916) terminology of cognitive functions, perceptions correspond to “noticing” or “taking notice of”, which to me is the same as the act whereby the “differences” from the territory

get picked up by the map. Moreover, there are other types of “differences”, such as *sensations*, of course, which correspond to Scheler’s tasting, smelling, seeing and hearing. Finally, he also talked about the intuited value-qualities in works of art, which I call *sensibilities*.

I think we have gone a long way, but we still have another level of being which should strike a chord since it’s our own level. With the help of Bateson we have entered the boundary of Cognition and with the aid of Scheler we have further mapped the territory of Cognition. But now we need to enter the boundary of Consciousness where Scheler found the demarcation line between Cognition and Consciousness.

Consciousness

Despite being trapped by phenomenology, Scheler (1913-1916) understood that human beings have an inner and an outer world, in fact, isn’t this the Inner-Outer Duality? However, Scheler argued that the individual world of the person is originally derived from the social world of culture. Indeed, just like the outer world is pre-given to consciousness, the social world is pre-given to the individual consciousness. In fact, the social world is even prior to the individual world. Does this remind you of the dualism between the Self and the Other?

As the founder of social phenomenology wrote while reviewing Scheler’s theory of intersubjectivity, “the sphere of the “we” is pre-given to the sphere of the I: the sphere of the Self emerges relatively late from the background of an all embracing consciousness” (Schutz 1982: 165). Furthermore, according to Scheler, “the world of the Thou or the world of community is an independent special sphere of being, like that outer sphere, the inner world, the body-environment world sphere, the sphere of the divine” (Scheler 1923: 254).

Finally, we have reached Scheler’s ‘hierarchy of beings’ which I would argue was prior to his dualistic metaphysics of the Spirit and Life, since, as we saw earlier, his later work on metaphysics and philosophical anthropology doesn’t distinguish anymore between the ego and the lived body which are conflated into the life-centre and, of course, the centres of force don’t have being at all because they don’t have interiority, according to Scheler (Diagram 10).

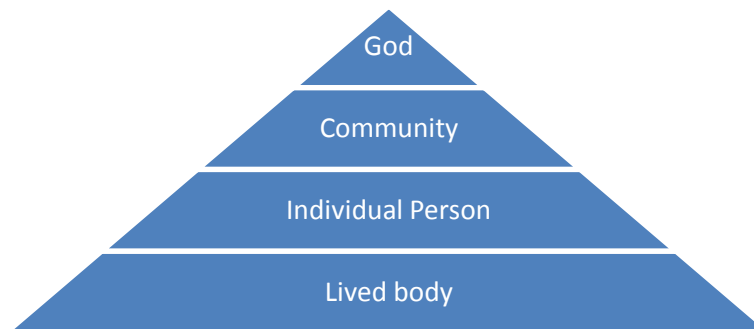


Diagram 10. Scheler's Hierarchy of Beings

Scheler will use this same hierarchy of beings to replicate a hierarchy of communities, in which there is also a collective person mimicking the individual person, claiming that they have "equal originality" (1973: 519). However, contrary to this last point, the sphere of the person is derived from the sphere of community. But if they have "equal originality", meaning that they are ontologically equal, why does he make them two spheres of being? Why aren't they the sphere of the conscious level? My answer to this question is that Scheler could not escape from the individual and social world embedded in the Self-Other Dualism. Moreover, he would end up saying that the individual and the collective person have an individual world, but unlike the individual person, the collective person's world "is *not fully* experienced in *any* of its member-persons" (Ibid: 523). Contrary to what he wanted to prove, however, "the collective person (apart from the concepts of it, such as state, nation, church) [is no longer] a spiritual individual as the individual person" (Ibid: 525), but an "experienced reality" by the individual members of the collective person. Thus, the social world is nothing more than an intersubjective reality.

Is a human system an intersubjective reality that depends on our thoughts or does it have a real existence despite our thoughts? Moreover, is the human system an intersubjective world or rather a conscious system? Well, let me postpone an answer since Part Five is devoted to explain this. For the time being, let us try to understand Scheler's individual. For Scheler, a human being is fundamentally a loving being, and only afterwards a rational or willing being. "Man before he is an *ens cogitans* or an *ens volens*, is an *ens amans*" (1973: 110). Moreover, "in every soul, taken as a whole and at any of its moments, there governs a personal, basic direction of loving and hating: this is its basic *moral tenor*" (1987: 136). So deep down a human being was a moral being and although feelings penetrate all the

hierarchy of being, the knowledge of values pertains to the loving being. Therefore, the loving being is intrinsically a moral being. “Only a person can (originally) be morally good or evil: everything else can be good or evil only *by reference to persons*” (1973: 85)

Despite the “person [being] the concrete and essential unity of being of acts of different essences”, such as thinking and willing, it seems that the intentional acts of loving and hating are more fundamental since they constitute the “moral tenor” that governs the person. Yet, is the human being primarily a moral being and only secondarily a thinking or willing being? Obviously, Scheler had Schopenhauer in mind when he claimed so. In the case of Schopenhauer, since the body was an objectification of the body and the *intellect* was a mere function of one part of that body (namely, the brain), thinking was secondary to willing.

“In our own consciousness the will always appears as the primary and fundamental thing, and throughout asserts its pre-eminence over the intellect; that, on the other hand, the intellect generally turns out to be what is secondary, subordinate, and conditioned” (Schopenhauer 1969: 198).

In fact, Schopenhauer was questioning the whole philosophical tradition before him

“All philosophers before me, from the first to the last, place the true and real inner nature or kernel of man in the knowing consciousness. Accordingly, they have conceived and explained the I, or in the case of many of them its transcendent hypostasis called soul, as primarily and essentially knowing, in fact thinking, and only in consequence of this, secondarily and derivatively, as willing” (Ibid: 198).

Both Scheler and Schopenhauer questioned the primacy of reason over emotions and desires. However, following my fleshed out world-hypothesis, I would say that it's neither the intellect nor the emotions that govern human beings, but his or her individual will instead. This does not mean we have to accept Schopenhauer's deterministic statement that “a human being does at all times only what he wills” (2009: 109). He was right in claiming that a person cannot will what he or she wants, but wrong in believing that he or she cannot choose what

he or she does. That is, you cannot choose what you desire but you can choose what you do. But isn't this exactly what we mean when we say that we have "free will" or self-determination? Well, this insight is neither scientific nor philosophical but daily life experience. Do we experience ourselves as being determined by something other than ourselves? Are we not fundamentally self-determined beings? So, does it make sense to say that we are ruled by reason or emotion? Or to put it in a more classical framing, to say that humans are governed by the body or the mind? Does this remind you of the Mind-Body problem? We should be suspicious of this framing as it goes against our daily life experience. Although philosophers normally distrust life experience, "it is always the same world that lies open to our view" (Goethe 1998: Fragment 309). Indeed, all those experiences are about one and the same world, so let us start taking our life experience experiences seriously instead of losing ourselves in philosophical speculations which are forgotten as soon as we carry on with our lives.

So far we have discovered the structure of the universe, its ontological levels, their interrelation, and mapped the different territories of reality with the aid of Bateson and Scheler. I hope you have enjoyed this part of the journey. Now it's time to go back to our secondary research questions to provide some answers we have discovered along the way:

- What are the ontological levels of reality? *Matter, Life, Cognition and Consciousness*
- How are the multiple ontological levels interrelated? I believe that *lower levels are neither subordinated to higher levels nor higher levels to lower levels. On the contrary, the intrinsic structure of reality contains mutually interdependent ontological levels. Thus, we don't need dependence "from below" (upwards causation) or determination "from above" (downwards causation) to explain the relationship between ontological levels*

Well, once we have answered the question of being we can now proceed to question of knowledge, instead of reducing ontology to epistemology as has been the case in Modern philosophy. So let us move to the next chapter to derive epistemology from ontology unfolding my world-hypothesis through the hypothetico-inductive method.

Chapter 11

Epistemology: How is Knowledge Possible?

So what is knowledge? It is not until the modern age that epistemology takes centre stage in philosophy, before then the question of knowledge is not separate from the question of being. According to Plato (369/368 BCE), for instance, knowledge is about those things that really *are*. And, as we know, only Forms have a true being since sensible things have only an apparent being as mere copies of Forms. Thus, true *knowledge is about transcendent Forms* which are the cause of the appearances we perceive through the senses. But how do we have access to Forms? Not through the senses, but through the soul that can remember what it already knew in the Intelligible World before falling into the Sensible World, Plato's (387 BCE) famous theory of anamnesis. In short, to know is to remember immutable and eternal Forms. Through the senses, we only perceive changing and temporal things without true being.

Aristotle (335 BCE), like Plato, believes that knowledge is about things that don't change but, unlike Plato, denies that forms are separate from individual substances. Individual substances are compounds of matter and form. Moreover, Aristotle identifies the essence with the form in substances. To know something is to know the *essence* by abstracting the universal from many particulars. In fact, the essence is the *universal* studied by different sciences. Physics studies the essence of substances that are a mixture of four elements (earth, water, air, and fire); the essence of other sensible and perishable substances (mutable) such as plants, animals and humans are investigated by different sciences; the essence of non-sensible and eternal substance (immutable) is studied by Theology; and, in between, the essence of sensible and eternal substances such as the celestial spheres is investigated by Cosmology. Furthermore, the universal can be abstracted by the soul because particulars have previously entered the intellect through the senses. "Nothing is in the intellect that was not first in the senses" (Aquinas 1256-1259: q. 2 a. 3 arg. 19). However, both Plato and Aristotle believed that we can only have knowledge of forms because matter is unintelligible.

After the shadow of Plato and Aristotle lifted, Descartes (1637) came along saying that we have to have doubt about everything we know (the famous

methodological doubt) until we reached something indubitable in our process of doubting. For him, that first indubitable axiom or principle was the doubting or thinking subject. So Descartes argues that the foundation of the edifice of knowledge is the mind itself and not the dubitable world that sometimes fools our senses, maybe because an evil demon is presenting us a complete illusory external world. However, at the end when he had secured the grounds for the thinking subject (*res cogitans*), Descartes pulled out the evil demon and replaced him by God, which by definition is good and therefore cannot be fooling us whenever we experience the external world.

The story after that is familiar to us. Descartes gives us a subject that receives ideas caused by the external world that correspond to the things in it because there is an isomorphism between the order of ideas and the order of things. The subject has internal ideas that mirror external objects. This is Subject-Object Dualism, separating the Mind from the World. Epistemology didn't need to be informed by ontology anymore since ontology is now reduced to epistemology. It appears that we can now go about doing science forgetting ontology altogether. To understand things, we don't need to postulate any immanent forms. Substantial forms were something from the past that modern science had to forget in order to unravel the secrets of the *natural world*.

Moreover, the existence of real ideas was replaced by the existence of real things. The old ontological realism of ideas has become an epistemological realism of things. Now there is only the order of things in the natural world that subjects can discover. Truth is about finding the correspondence between external things and internal representations. However, not comfortable with dismissing ideas, idealists like Berkeley (1710) appeared on the scene claiming that external bodies are just a collection of ideas in the mind; strictly speaking, there are no material things in the universe at all - only mental ideas. Everything that our mind perceives *is* ideas. "Esse est percipi", to be is to be perceived, Berkeley (1710) tells us. So now the notion of truth as correspondence is dismissed as there is no outside world 'out-there'; only an internal world of mental ideas. 'The world is my representation', stated Schopenhauer (1818/1819). Now it's a matter of organizing our mental ideas, since that is all we have. Therefore, truth as correspondence is now transformed into truth as coherence: we need internally coherent systems of ideas. There are no true object only true ideas. This battle

between realists and idealist is essentially the two extremes of Subject-Object Dualism. Whereas realists side with the object giving rise to the subject, idealist side with subject giving rise to the object.

Not comfortable with this Subject-Object Dualism, phenomenologist like Husserl (1900-1901), advocated a Subject-Object Correlation. There are only objects for subjects; all consciousness is 'consciousness of something'; there cannot be any objects standing 'out there' because all objects are given to a subject. However, all acts of consciousness are intentional: they intend something other than themselves. Intentional acts are always directed towards the objects that are being intended; namely, intentional objects. Since consciousness by definition is 'directness' or 'aboutness', there cannot be a subject or an object standing alone, but only together in an act of consciousness. We have to go back to the things themselves, claimed Husserl (1900-1901), but this doesn't mean going back to the material things or the mental ideas, but to the 'evidence' behind phenomena; that is, the individual achievement of truth. We have to distil these from our subjective experience, and the structure of experiences can only be revealed through the phenomenological method, achieving the evidence behind subjective experiences and describing what appears in consciousness.

However, the Subject-Object Correlation was overshadowed by the Self-Other dualism (Heidegger 1927). Just like the Object was a correlate of the Subject, the individual world of the Self was the correlate of the social world of the Other. In fact, the social world was pre-given to any individual world. Therefore, the natural world of science had to have the social world as its prerequisite. Finally, in the latter tradition, those advocating hermeneutics (Gadamer 1960) also wanted to play the language game. The world is not an individual world of subjective experiences as the phenomenologists believe but a social world of linguistic meaning. There are no pre-linguistic experiences since all experiences are mediated by language. Our world-views are language-views. "Language is the house of being", Heidegger (1949) said. Being is constituted by language. Therefore, truth is about disclosing the world by interpreting its meanings. So, hermeneutics transformed the individual world of subjective experiences into a social world of linguistic meanings. The world is no longer something I experience and describe to others but something we constitute and interpret together through language.

	Realism	Idealism	Phenomenology	Hermeneutics
Mind	Represents	Perceives	Intends	Interprets
Truth	Correspondence	Coherence	Evidence	Disclosure
Ontology	Natural World of material things	Internal World of mental ideas	Individual World of subjective experiences	Social World of linguistic meanings
World	The World is Mind-independent	The World is Mind-dependent	The World is a Correlate of the Mind	The World is Constituted by language

Table 18. Summary of Western Epistemologies

So what is knowledge? Knowledge is about discovering representations that correspond to mind-independent objects, declares the realist. Instead, the idealist claims that knowledge is about perceiving internally coherent ideas. Not at all, says the phenomenologist: knowledge is about achieving the evidence of the subjective experiences that appear in my individual world. Even less convinced, the hermeneutics believes that knowledge is about disclosing the linguistic meanings of our social world.

But if knowledge is none of these “things”, what is knowledge then? Well, instead of reducing ontology to epistemology as has been the case in modern and contemporary philosophy, as I argued in Chapter 9, maybe the answer rests in deriving epistemology from ontology, and not the other way round. So let’s see whether we can infer now an epistemology using my hypothetico-inductive method to continue fleshing out my world-hypothesis in order to answer the question of knowledge: who is knowledge possible?

Unity between Cognitive and Conscious Experiences

Knowledge seems to be a conscious phenomenon, although some claim that there are “knowledge generating systems” (Midgley 2000, 2012) that stretch beyond the brain and body (Midgley 2000). However, I would say that, although cognitive systems pick up information from the territory, strictly speaking cognitive systems

don't generate knowledge. Indeed, information is not knowledge per se. However, that doesn't mean that we can have knowledge without information. On the contrary, we need the conscious level to cooperate with the cognitive level in order to get knowledge. In fact, this is a good example of the "autonomy in dependence" relationship between the conscious level and the cognitive level. Moreover, there is no causal interaction between ontological levels, no downward causation between the higher conscious level and the lower cognitive level, but the cooperation between levels that enables knowledge.

"Interesting", someone might say, "but what about the Subject-Object and Self-Other Dualisms? Does this new epistemology manage to avoid those same dualisms you have criticised so much?" Indeed, instead of building on them like Western epistemologies, I will build on the Inner-Outer Duality intrinsic to Consciousness, as epistemology must be derived from ontology. But before doing so, let me introduce a few quotations from Goethe related to the Subject-Object Dualism to prepare the ground.

"Everything factual is already theory: to understand this would be the greatest possible achievement. Don't go looking for anything beyond phenomena: they are themselves what they teach, the theory" (1998: Fragment 575).

It is clear he didn't accept the Subject-Object Dualism and proposed instead what he called a "delicate empiricism which makes itself utterly identical with the object, thereby becoming true theory" (1995: 301). Moreover, he couldn't understand Kant's artificial separation between perceiving and thinking. "My thinking is not separate from the objects [...] my perception itself is a thinking, and my thinking a perception" (Ibid: 39)

However, Goethe did realize that knowledge was not about automatic activity of picking up differences from the territory by cognitive functions alone but about uniting them with ideas originating in conscious activity. "Theory and phenomenon are opposed to one another in perpetual conflict. All union in reflection is deceptive; it is only by action that union can be achieved" (1998: Fragment 1231).

That was a tremendous insight!

Moreover, Popper was also very critical about what he dubbed “the bucket theory of mind”:

“Our mind is a bucket which is originally empty, or more or less so, and into this bucket material enters through our senses ... and accumulates and becomes digested [...] The important thesis of the bucket theory is that we learn most, if not all, of what we do learn through the entry of experience into our sense openings; so that all *knowledge consists of information received through our senses; that is, by experience*” (1972: 61).

Maybe now it becomes clearer why I don't think information per se is knowledge. Yet, information is a necessary but not a sufficient condition of knowledge, as Goethe realized. “He who has a phenomenon before his eyes is often already thinking beyond it; whoever only hears talk of it, thinks nothing at all” (1998: Fragment 1227).

Having prepared the ground, now I introduce the new epistemology derived from my half backed world-hypothesis (metaphysics and ontology). Well, knowledge depends on the mutual cooperation between the cognition and the conscious levels through activity. But when I say activity, I mean the simultaneous activity of both ontological levels. The “autonomy in dependence” applies to both levels, since knowledge depends on the mutual determination of both the cognitive level and the conscious level. On the one hand, the cognitive level's activity of picking up differences from the territory depends on the activity of the living level. On the other hand, the conscious level activity of generating knowledge depends on the activity of the cognitive level. As we can see, knowledge results from a mutual interdependence between all and every one of the ontological levels intrinsic to conscious being.

Goethe has a fruitful intuition that can now be explained through the new ontology. Fortunately, we have already mapped the cognitive and the conscious territories, so we are more than ready to understand how the one activity, because there is only one single will, results in knowledge. Let me stress this point. That is, the determination or self-directness of every ontological level is not a multiplicity of activities, but one single activity, because each being is self-determined by one single will, not by a multiplicity of wills. However, given the

integration of ontological levels, besides being triggered by “differences” in the case of cognitive systems and experiences in the case of conscious systems, conscious systems, in turn, have both cognitive and conscious experiences. And the source of knowledge, in fact, comes from the cooperation between cognition and consciousness levels. Again, since “a picture is worth a thousand words” I hope the following diagram will be useful to understand how the unity between cognitive and conscious experiences is the condition of possibility of knowledge (episteme).

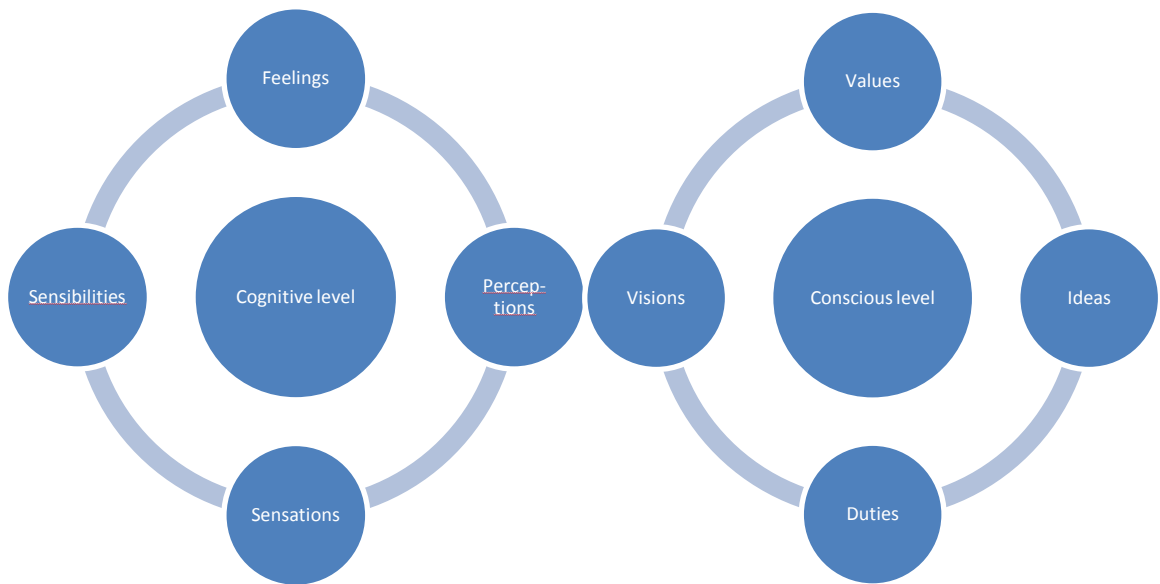


Diagram 11. Unity between Cognitive and Conscious Experiences

Though this diagram is not self-explanatory at first, I will explain the different types of unity between cognitive and conscious experiences enabling the following forms of knowledge.

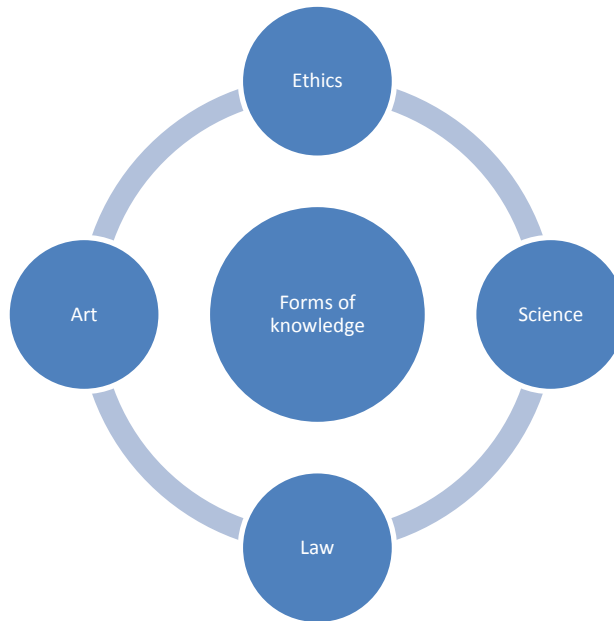


Diagram 12. Different Forms of Knowledge

Given that most people in the West will agree that science is a form of knowledge, and for some even the only form of true knowledge, I will expand on the other forms of knowledge for those who are not convinced. For starters, the unity between ideas and perceptions that results in *science* is classic: rationalists stress the former and empiricists the latter, with empiricists claiming that all knowledge comes from experience (mainly perceptions) and rationalists that all knowledge comes from reason (in particular, ideas). Well, now it's obvious why they couldn't agree. We cannot separate the cognitive from the conscious level, like Descartes did, and expect to get true knowledge. Conversely, we cannot dismiss the conscious level and say that all knowledge comes from sense experience, reducing all knowledge to information, as the empiricists did.

How about the unity between visions and sensibilities that results in *art*? Few consider art as a form of knowledge nowadays. Well, if science is about true knowledge, knowledge about the "things" that are true, why can't there be knowledge about the "things" that are beautiful? We can agree on the things that are true, surely, but it's more difficult to agree on the things that are beautiful, some will argue. Indeed, there a plenty of "things" that many people will agree that are beautiful. However, others will say that this is because each age has its own art styles and things that are beautiful in a one age may not be so in another. Indeed, I agree that taste changes, you only have to look at the history of art, but

this doesn't mean that 'beauty is in the eye of the beholder'. There are things that are beautiful in themselves. Do you think that Shakespeare's *Hamlet* will be less beautiful in a thousand years' time? What applies to Literature, applies to Architecture, Painting, Sculpture, Music and the like.

What about the other two forms of knowledge (Diagram 12), namely ethics and law. I would argue, in the same spirit as Kant (1785), that we are all gifted to sense the sorts of "things" that are *right* and feel the sort of "things" that are *good* in themselves. These are talents that belong to all of us. On the one hand, we can all distinguish the experience of a good from a bad *value*. Again, people will argue with Nietzsche's polemic *On the Genealogy of Morality* (1887) that moral values evolved with time, starting with the original war between Judea's valuations of good/evil and Rome's valuations of good/bad that continued throughout history. No, if genuine works of art are immortal, why can't good values always remain so, regardless of the time in history?

Regarding laws, not everyone agrees on what are what is a right or a wrong law, but nobody doubts that the 'rule of law' is a mayor progress in the history of human civilization. Furthermore, if we didn't sense that some laws a wrong we would never change them or enact new ones. Socrates knew this when he respected the sentence of death after his trial, even though he had the possibility of escaping from prison before his execution. No wonder Plato called him "the wisest and most upright man" (Plato 387 BCE). What about Abraham Lincoln's determination to abolish slavery at all costs? And there are plenty of unknown moral and just heroes that nobody knows about. Truly genuine human beings, I would say; and we could also say with Spinoza (1677) that "all excellent things are as difficult as they are rare" (Part V, Prop. XLII, Scholium), yet every one of us will recognize greatness when we see it.

Nice, but someone can still ask: "can you tell us now how your new epistemology built on the Inner-Outer Duality intrinsic you mentioned earlier on?" This time let me introduce an intuitive table before I explain how everything fits together (Table 19).

Activities	Inner	Outer
Acting	Conscious Acts (thinking, judging, loving, imagining)	Cognitive Functions (perceiving, sensing, feeling and sensibiling)
Experiencing	Conscious Experiences (ideas, duties, values and visions)	Cognitive Experiences (perceptions, sensations, feelings and sensibilities)

Table 19. Conscious and Cognitive Experiences enabling Knowledge

Well, like all beings, we carry out a set of activities coming from the material, living, cognitive and conscious levels; each higher level depends on lower levels to carry its activities, the conscious on the cognitive, the cognitive on the living, and the living on the material. Indeed, the interdependence relationship cuts across all the ontological levels of a system. Yet, these multiple and simultaneous activities are self-determined by one individual will.

Starting from the right side of the diagram, cognitive functions and cognitive experiences *happen* simultaneously, therefore, these are *happenings* for cognitive systems. But as Scheler noticed (1913-1916), in the case of human beings, these happenings are *given* in Consciousness, entering as an outer in the Inner-Outer Duality intrinsic to Consciousness. To repeat what was said earlier, strictly speaking, cognitive systems don't have an outer world, only a map of the territory which does not appear in the mind but is Cognition itself. The map and cognition are one and the same. In short, cognitive systems don't have windows but mirrors that pick up "differences" from the territory. Moreover, the inner part of the conscious duality that starts with conscious acts is much easier to explain. Like in the case of cognitive functions, different types of conscious acts (thinking, judging, loving and imagining) result in different conscious experiences (ideas, duties, values and visions).

In summary, unlike the traditional understanding of knowledge that reduces all knowledge to *science*, that is, to those ideas that are *true*, I believe that true knowledge is only one form of knowledge. In addition, *art* is the form of knowledge about those visions that are *beautiful*, just like *law* is the form of

knowledge about those duties that are *right* and finally *ethics* is a form of knowledge about those values that are *good*.

Let's conclude this chapter by saying that any serious epistemology needs to build on the multiple ontological levels that constitute the universe and the Inner-Outer Duality intrinsic to Consciousness, if it wants to avoid perpetuating the following dualisms embodied in Western epistemologies: Subject-Object and Self-Other. To stress the point, epistemology has to be derived from ontology and never the other way round, as I believe this chapter has proven.

Chapter 12

Thought: How is Knowledge-Structure Possible?

The answer to the question of knowledge takes us to the *question of thought*, now that we know how knowledge is possible we need to understand how knowledge-structure is possible, the final question in our philosophical inquiry. This question is about the organization of knowledge and presupposes that knowledge is structured in concepts as a matter of fact. Philosophy takes the actual reality as a given and explains how it is possible. As with other perennial questions, there is an underlying problem assumed in the history of philosophy. In fact, this traditional problem has been so entrenched since Plato that even Russell (1911) claimed that “there is a fundamental division of the objects with which metaphysics is concerned [...] universals and particulars [...] My own opinion is that the dualism is ultimate” (1911: 1). In my list of perennial problems (Chapter 7, Page 67), the question of thought assumes the question of knowledge since each perennial question in philosophy needs to be addressed in a certain order because they are all interconnected.

Now that we are far into the philosophical journey and near our final destination, we can notice that the boundaries of philosophy do not correspond to the traditional territories of philosophy since each genuine philosophical question determines a different territory of philosophy. Contrary, to the traditional domains of philosophy, I am claiming that metaphysics is not a branch of ontology but a different philosophical question. Only ontology and epistemology continue to be different domains of philosophy, even though, as I have been claiming, modern philosophy has reduced ontology to epistemology. However, the question of thought I’m introducing now is another territory of philosophy that has gone unnoticed because of the assumption that the structure of knowledge (thought) is the structure of reality (being). In fact, Hartmann traces back this identity thesis to Parmenides (540-450 BC): “The maximum simplification of the image of the world that can be conceived is Parmenides’s thesis of the identity: thought and being are one and the same thing” (1959: 143). I think it’s important to stress that thought doesn’t mirror reality because the structure of thought and the structure of reality are not isomorphic. In short, *we have to stop conflating being and*

thought because the structure of concepts doesn't mimic the structure of the universe, as we will see in this chapter.

After having claimed the need of a different territory of philosophy that is not isomorphic to the structure of being, let's start tackling this perennial problem by asking ourselves: Do concepts have a part-whole structure? Where does that assumption come from? To my understanding, the part-whole structure results from assuming a double relation between the particular and the universal in the history of philosophy:

- Subordination: The particular is subordinated to the universal
- Subsumption: The universal is contained in the particular

These two relationships taken together imply that the particular *falls under* the universal, since the universal is *higher than* the particular. That is, without the relation of subordination, the subsumption relation doesn't necessary imply a vertical relationship between the particular and the universal: the universal and the particular could equally have a horizontal relationship, for instance. In short, something could be 'in' something else without being necessarily on top or below it.

In addition, the relationship between concepts is also isomorphic to the assumed structure of concepts: lower-order concepts (parts) fall under higher-order concepts (wholes). To use the standard philosophical terminology, the species (part) is *subsumed under* the genus (whole). According to Aristotle (350 BCE) and Porphyry (268-270), there is a hierarchy of concepts that goes from the most general concepts (genus) to the most specialized concepts (species) as the following example shows. That is, man is subsumed under animal, animal under living, living under body and everything under substance.

Whole-Part	From General to Specific Concepts
UNIVERSAL	Substance
	Body
	Living
	Animal
	Human

Table 20. From Genus to Species of Human

More importantly, the same part-whole structure is also found in the traditional concept of system. Just like the particulars (parts) fall under the universal (whole) in the standard theory of concepts, the parts fall under the whole in the prevailing concept of system. Furthermore, just like lower-order concepts (species) fall under higher-order concepts (genus) in the standard hierarchy of concepts, the lower-level systems (parts) fall under higher-levels systems (wholes). In short, *both the structure of concepts and the structure of the concept of system are isomorphic.*

Indeed, if the concept of ‘system’ is a concept, it should have the same structure as all concepts. So it would be an anomaly if we found out that the concept of system has in fact an exceptional structure that doesn’t coincide with the structure of concepts. But what if the actual structure of concepts was different from the assumed structure of concepts? In this chapter I’m going to argue this: the actual structure of concepts doesn’t correspond to the traditional structure of concepts proposed by philosophers. And if this is the case, the prevailing concept of system is no longer isomorphic with the actual structure of concepts. Therefore, if concepts have a different structure, we will need a concept of system that is isomorphic with the actual structure of concepts.

Traditional Theory of Concepts

According to Aristotle (350 BCE), though “the Pythagorics [...] were the ones who began to talk about *what-is* and have made definitions, yet they were carried out with excessive simplicity [...] Socrates [is credited for] having been the first to

focus on definitions” (2003: 94-95). He did so by searching for the universal in ethical matters such as *what-is* justice? This is the form of question that asks for a definition of the *essence* of something. However, the essence is not a predicate but a definition of an entity, such as being human. Moreover, “there will be no essence of things that are not species of a genus” (Ibid: 290). This means that there are no definitions of individual substances, such as particular individuals like Socrates, for instance. However, what can be predicated on Socrates are the *universals* contained in many particulars similar to Socrates such as animal (genus) and rational (difference). Moreover, there are other attributes that can be predicated on Socrates, but they are not universal and, hence, cannot be included in the definition of human. Thus, the answer to the question of *what-is* human can only include universals. Consequently, the *definition of human is rational animal*. However, all definitions of entities imply a hierarchy of concepts.

As Porphyry (268-270) says,

“Genus is that to which the species is subordinated [...] this genus is, in some way, the source from which springs the species that are under him, and seems to subsume the entire community under him [...] Species is said also of that which is under a certain genus” (2003: 53-56).

On the top of the hierarchy of concepts we find the genus generalissimus (substance) and at the bottom the species specialissima (human) as the following Tree of Porphyry shows.

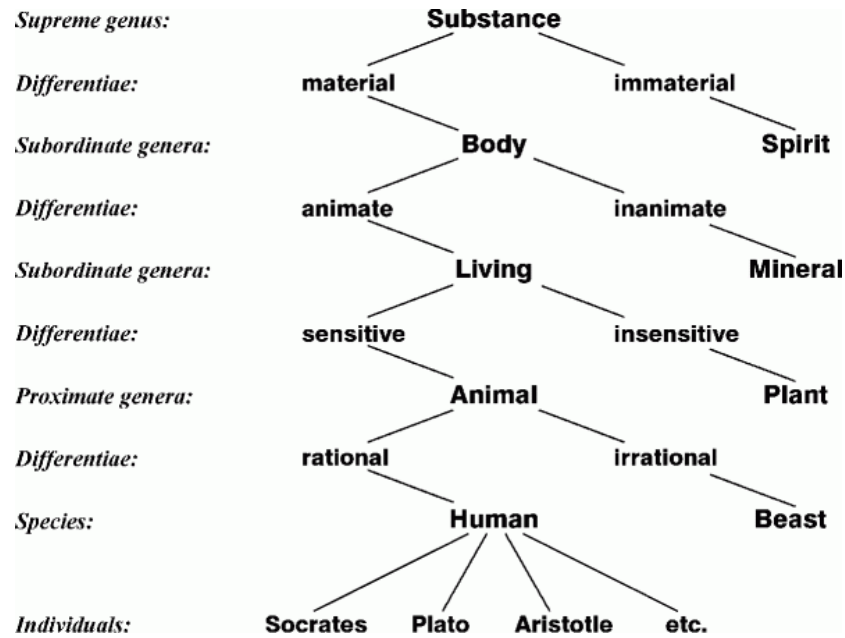


Diagram 13. The Tree of Porphyry

The implicit assumption is that the more specific is the concept the less things fall under it and vice versa. So there is an inverse relation between the content and extension of the concept. If we increase the content we reduce the number of particulars falling under the concept. Taking this example, the concept of Man is contained in the concept of animal, so the latter covers more particular cases than the former, which only includes men. There is an assumed trade-off between the generality and specificity. The more general the concept, the less specific it becomes.

Moreover, in describing the structure of the Tree from top to bottom, Porphyry writes:

“In descending to the most specific species, it is necessary [...] to cross a multiplicity, whereas in ascending to the most generic genus, we must collect in one the multiplicity, for the species, and even more the genus, unite the many into one single nature. On the contrary, the particulars and singulars always divide the one into plurality for, by sharing the species, many men become one man; but the one and common man becomes many by virtue of the individual

men. What is singular is always divisive; what is common collects and unifies" (Ibid: 61).

Thus, the part-whole structure of the Three is evident and even acknowledged by Porphyry:

"The individual is then included under the species and the species under the genus. For the genus is a kind of whole and the individual a part, while the species is both a whole and a part, although a part of one thing and the whole not *of* another thing but rather *in* other things. For the whole is in the parts" (Ibid: 63)

Thus, the particular (part) always falls under a species (whole) and the species (part) always falls under a genus (whole).

Delving into this hierarchical structure, Hartmann noticed

"[Unlike] the gradation of height between *genus* and *specie* [...], everything real is found in one single plane. For everything real is specified to the last extreme, everything is individual (unique and given only once), and has "under" it absolutely no specification whatsoever. On the contrary, the real has "over" it the entire gradual kingdom of the *species* and *genus*, until it ascends to the *absolutely indeterminate entity*" (1956: 379-380)

Furthermore, according to Hartmann, the *hierarchy of essences* in the sphere of ideality that rests on top of the sphere of reality is different from the *hierarchy of concepts*. "The concept imitates it within the narrow limits of its sphere. *Genus* and *species* are related categories of essences, not concepts (Ibid: 375). However, he acknowledges concepts and essences are isomorphic. On the one hand, specific concepts *fall under* general concepts. On the other hand, essences and concepts are *general* since the individual particulars fall under general essences/concepts. Yet, Hartmann denies that concepts are universals like essences. On the contrary, "universality and individuality must be understood here with ontological rigor. The former is not the conceptual, the abstract" (1965: 362). To add some more evidence of the isomorphism between essences and concepts, Hartmann even acknowledges the same "law of the inverse ratio between "extension" and "comprehension" that dominates the logical relations of

concepts” (1956: 371). The more content included in the concept the less individuals fall under it. One wonders whether the hierarchy of essences and the hierarchy of concepts aren’t one and the same thing. Anyway, let’s enter into Hartmann’s structure of concepts, which is isomorphic to the standard concept of system.

Hartmann’s Element-Complex Category

So far we have seen that the traditional theory of concepts claims that only essences are definitions of entities, and that only universals can be contained in the definition of *what-is* something. Moreover, there is a hierarchy of concepts that have a part-whole structure, just like the particular *subsumed under* the universal at the bottom of the pyramid of concepts. Let’s concentrate now on the structure of concepts in relation to Hartmann’s structural category of *element-complex*, which applies to all strata of reality.

According to Hartmann, the *element-complex* should be distinguished from the *part-whole*.

“In general the complex has some autonomy in relation to the members, while the whole has none in relation to the parts. The dependency is, then, in the complex rather the inverse than in the totality. Here the whole depends on the parts, there the elements depend on the whole” (1959: 361).

This element-complex category resembles the prevailing concept of system and shows the same *relation of subordination* found between lower-level systems (part) and a higher-level system (whole). Indeed, “the higher forms of the complex show a clear subordination of the elements to the whole” (Ibid: 362).

Likewise, the element-complex category also assumes the same *relation of subsumption* between the particular and the universal.

“Above the individual spirit there are in fact other genuine complexes. Two main types of them must be distinguished: the type of the community and that of the objective spirit. In the collective the persons are the elements [, whereas the objective spirit] rises above

the vital unity of the species integrating the institutions created by the spirit" (Ibid: 360).

In other worlds, the combination of the subordination and subsumption relationships in the case of systems results in the element *falling under* the complex, just like that same combination in the case of concepts results in the particular falling under the universal. In short, the isomorphism between the structure of concepts and structure of systems is evident. However, someone might think that even if concepts and systems have the same structure, concepts and systems are not the same kind of things because the former are abstract and latter are real.

Yet, according to Hartmann, the concept is a form of complex in the "fabric of thought".

"Here, indeed, the concept is not a rigid system, the content of which would remain identical, but something exceedingly mobile and changeable. Concepts have their history [...] The concept changes in the progress of knowledge [...] And in fact the different concepts don't change alone, but always groups and whole orders of concepts [...] The same can also be said of the unity of whole systems of thought, the so-called "theories" [...] Since the realm of contents of knowledge is of layered units and all grades have the same mobility" (Ibid: 372).

Now we can how concepts differ from essences, since the essences of the sphere of ideality are immutable and timeless, whereas concepts of the *sphere of thought* are mutable and temporal, they change with the progress of knowledge. But Hartmann is telling us something more fundamental: *the structure of concepts and the structure of thought are isomorphic*. Both concepts and thought have a part-whole structure. Furthermore, just like lower-order concepts (parts) fall under higher-order concepts (whole), lower-order theories (parts) fall under higher-order theories (whole). That is, the hierarchy of concepts culminates in a *hierarchy of thought*. Thus, we have uncovered the last assumption behind the traditional theory of concepts: *thought has a part-whole structure*. Let's conclude this section with our findings.

Part-Whole Structure	Part-Whole Structure
Concepts	Systems
Hierarchy of Concepts	Hierarchy of Systems

Table 21. Isomorphism between Concepts and Systems

So far we have shown that the concept of system has the same *structure* as the traditional theory of concepts, but what is the *content* of the prevalent concept of system?

Standard Concept of System

Despite the concept of system mimics the structure of the traditional theory of concepts, the content of the definition of systems doesn't contain universals but the attributes that can derived, nevertheless, from the universal-particular relationships. On the one hand, from the relation of subordination between the part and the whole, we can infer that the parts are *dependent* on the whole and the whole is relatively *autonomous* from the parts. On the other hand, from the relation of subsumption between the parts and the whole, we can infer that the *many* parts are subsumed under *one* whole. Indeed, *a system is one whole made of many parts in which the parts dependent on the whole*. Moreover, what the content of the concept of system shows is that its attributes form *two pairs of opposites*.

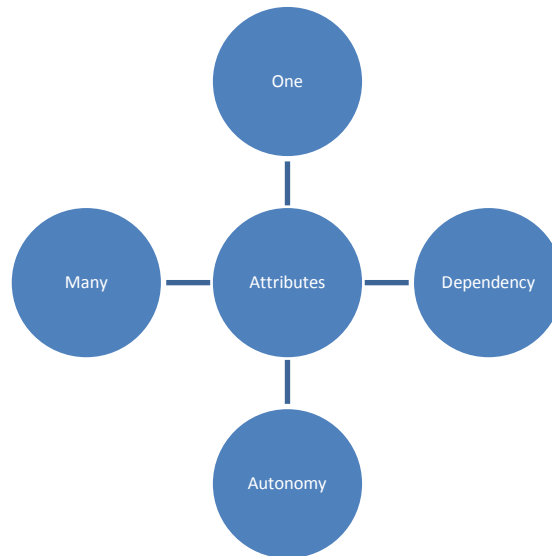


Diagram 14. Standard Concept of System

Someone might have noticed that I've switched from 'predicates' to 'attributes' in defining the concept of system. By 'attributes', consistent with my epistemology, I mean qualities intrinsic to something. I use the word 'attribute' instead of 'quality' because I believe it's more precise, since the notion of quality is tainted with the primary/secondary qualities distinction, in which the former pertain to the objects (objective), such as solidity, and the latter pertain to the subject (subjective), such as colour. However, I prefer attributes because they are differences from the territory picked up by our cognitive level. Moreover, I prefer to avoid using the word 'predicate' intentionally in order to avoid linking concepts with language (subject-predicate structure).

The Structure of Science: Completion

Now that we have the structure and the content of the concept of system, we can ask ourselves: does the standard concept of system mimic the actual structure of concepts in science? That is, is the structure of the concept of system isomorphic to the structure of thought? I don't think so. We just need to take any scientific law that expresses a thought and notice that all scientific concepts are *mutually implicated* as Newton's second law of motion (1687) shows:

$$F = ma ; m = F/a ; a = F/m$$

So it is clear that we don't see lower-order concept (part) *falling under* a higher-order concept (whole), since all the concepts seem to be at the same level. Furthermore, any of those concepts can be, in turn, substituted by any other mutually implicated concept such as, for instance, the concept of force can be substituted by Newton's law of universal gravitation (1687).

$$F = G \frac{m_1 \times m_2}{d^2}$$

Again, all the concepts seem to be at the same level, so we don't see a subordination relation neither a subsumption relation between concepts. Are we in front of a different structure of thought? The following table shows how it looks to me in comparison with the assumed structure of thought.

Assumed Structure of Thought (part-whole)	Actual Structure of Thought (completion)
Scientific theories fall under philosophy	A world-hypothesis is completed by interdependent scientific-hypotheses
Propositions fall under scientific theories	A scientific hypothesis is completed by interdependent propositions
Concepts fall under scientific propositions	A scientific proposition is completed by interdependent concepts
Individuals fall under concepts	A concept is completed by interdependent attributes

Table 22. Assumed versus Actual of Structure of Thought

Thought is not organized following a part-whole but a completion structure, there are no lower-order concepts (parts) falling-under a higher-order concept (whole), nor lower-level theories (parts) falling under a higher-level theory (whole), but scientific concepts that complete scientific propositions which, in turn, complete scientific-hypotheses which, in turn, complete a world-hypothesis. However, someone might say: surely each completion of yours is a whole! But I would answer that once we understand that all concepts are at the same level the

concept of whole fades away, since there are neither wholes having parts *underneath* them nor wholes resting *on top* of parts. In short, the relationship of parts falling under a whole is absent in the completion structure.

Before we move on, I should warn that the structure of thought doesn't imply that we have completed all the empty spaces with all the necessary concepts, propositions or hypotheses nor that we will be able to do so one day. On the contrary, I believe that the progress of knowledge is endless.

Next, it is obvious that even though the prevailing concept of system fits into the structure of traditional concepts, its content is not mutually exclusive, such as the disjunctive universals contained in the definition of essences. Someone might say, surely if we take any one of the pair of opposites contained in the concept of system, we can claim that either one-many or dependency-autonomy are mutually complementary attributes. However, are the two pairs of opposites taken together mutually complementary? I don't think so because one pair is not completed by the other and, hence, the attributes are not interdependent.

Finally, we have found how the actual structure of concepts in science differs from the traditional theory of concepts, but we still need to come up with a concept of system that fits in that structure. However, all we know so far is that the structure of that concept contains mutually implicated attributes. This means that we need a new concept of system containing different attributes which I'm about to propose.

My Concept of System

Where do we start? Maybe with a recap of my critical review of contemporary systems thinking made in Part One. Contextualizing that short history within the broader history of Western thought, we can see how it is placed in the transition between the modern and the contemporary image of the world, shifting from viewing systems as objective entities, outside (realism) or inside the mind (idealism), to worldviews, individual (phenomenology) or social (hermeneutics). But are systems objective entities or world-views? In the following I will only concern myself with the natural world-image populated by extended objects since

the social world-image is an ontologically empty universe, as I explained in Chapter 4.

Hartmann's complex may well be one of the first formulations of the standard concept of system as used in 20th Century systems science. Indeed, that notion assumed a system as extended entities made of elements. That assumption that systems are extended objects is well captured by the traditional axiom in the field of systems thinking: 'the whole is more than the sum of its parts' (Bertalanffy 1968: 18). To mention another founding father of GST, "a system is a set of interacting units with relationships among them [...] the units (subsystems, components, parts or members) of these systems are also concrete systems" (Miller 1978: 11-12). In addition, "the universe contains a hierarchy of systems each higher level system being composed of systems of lower levels" (1978: 20). In other words, the universe forms a hierarchy of higher wholes that can be divided into lower wholes which are parts of higher wholes. In turn, lower wholes have parts which are in turn wholes made of further parts. Contrary to this concept of system, I will argue that a system is an indivisible one and, thus, the universe is not a whole made of interacting parts.

To avoid misunderstandings, I should start by saying that a system is not a whole and, as such, doesn't have parts. Conceptually speaking, a whole implies parts and parts imply a whole. What are wholes without parts or parts without wholes? I want to distance myself from this view of systems as extensive objects that are divisible in nature. I may well be alone in claiming that systems are not wholes made of interacting parts because it goes against the accepted view in systems thinking. However, a world-hypothesis has to be judged according to its explanatory power rather than by the prevailing consensus in the field. In the following, I'm going to argue that (1) systems are *non-divisible* and (2) *non-hierarchical*. Lower level systems are not subordinated to higher level systems as is normally assumed. In fact, both of these assumptions (about divisibility and hierarchy) are connected in the standard view of systems: higher level systems (wholes) are composed of lower level systems (parts).

So what is my concept of system? All systems in the universe share a set of interdependent attributes that I am going to discuss. Let us start with the most intuitive attribute advocated by systems thinkers; namely, the attribute of

'UNITY', which is assumed to be coextensive with the attribute 'whole' in the field of systems thinking. In fact, I believe my major issue with the standard concept of system is the confusion between 'whole' and 'unity'. 'Whole' means 'with parts', whereas 'unity' means 'without parts'. Therefore, according to the standard concept of system, a system is *one* whole made of many parts, as we saw earlier.

That brings us to the next confusion between unity and a different attribute of systems, namely, 'ONE'. 'One' is 'singular' as opposed to 'plural'; that is, 'one' as opposed to 'many'. In fact, that confusion between 'one' and 'unity' is common in the history of philosophy. In particular, Kant confuses them in his table of categories (quantity: unity, plurality and totality) and Hartmann does the same in his table of opposites of being (unity-multiplicity). Indeed, it is easy to confuse 'unity' with 'one', but the difference is revealed when we compare their opposite attributes. Unity as indivisible is opposed to divisible, and one as singular is opposed to many. The conceptual confusion between one and unity comes from pairing unity and multiplicity.

But why is it so important to distinguish 'one' from 'unity'? If we do not do so we will lose another attribute of systems, that is, *INDIVIDUALITY*. A system contained in another system is not a part of that system, but simply another system. Therefore, we don't have a system being part of another system but two different systems, one inside the other. In fact, if we treat the contained system as a mere part, component or organ of the containing system, the former loses its individuality in the latter. In other words, only the containing system would have individuality since the contained system would serve a higher level purpose. On the contrary, a system contained inside another system has a different individuality.

However, in order for a system to have individuality, we need another attribute that we're already familiar with in this thesis, *AUTONOMY*. Indeed, individuality is the product of the system's activity. Without the attribute of autonomy, systems would be the product of another's activity, such as a higher-level system, for instance. That is, if lower-level systems depended on higher-level systems only the wholes would have individuality.

Finally, just like individuality depends on autonomy, all attributes are mutually implicated in the concept of system. 'Unity', for instance, implies 'autonomy',

whereas ‘with parts’ implies ‘dependency’. That is, if something has parts, it means that is divisible, but it implies that the parts depend on the whole, and hence, the parts are not autonomous from the whole. If the parts are part of the whole, it implies that the parts don’t have individuality apart from the whole. In short, while ‘with parts’ implies ‘dependency’ and ‘without individuality’, *one, unity, autonomy and individuality are mutually implicated attributes*. These attributes are paramount to identify a system inside the universe, which is also a system with the same four attributes. This means that many traditional systems, such as the organs in a body, don’t qualify as systems because they are not *self-contained beings*. By saying that systems are self-contained beings I don’t mean that systems are isolated from other systems, but the exact type of relationship between systems will need to wait for Part Four devoted to systems science.

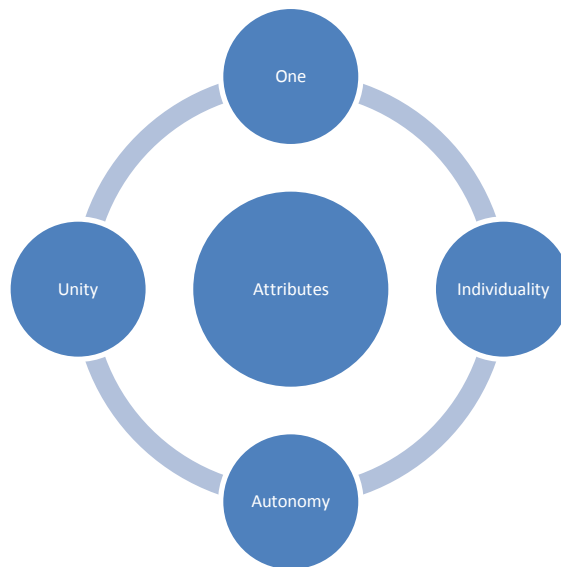


Diagram 15. My Concept of System

We have reached our destination. We have found a new concept of system that is isomorphic with the actual structure of concepts and, by doing so, answered another of my secondary questions:

- What is a system? A system is a *self-contained being* defined by the following interdependent attributes: one, unity, activity and individuality.

This philosophical inquiry, however, has reached its final destination, that is, we now have a philosophical hypothesis. But do we have enough with it to ground

systems practice? I'm afraid not. In order to ground systems practice, this philosophical picture of reality still needs to be complemented by a scientific picture of reality. That means that we need to start a scientific journey without forgetting what we learned during our philosophical journey. I believe that this second journey will provide the complete world-hypothesis we are looking for to ground systems practice and methodological pluralism.

Chapter 13

The Demarcation between Philosophy and Science

The demarcation between philosophy and science has always been an issue ever since Kant claimed to have demonstrated the impossibility of metaphysics as a science. According to him, *synthetic a priori propositions* found in sciences, such as physics and mathematics, come from applying concepts to perceptions.

Let him express it in his own words:

“Intuitions and concepts [...] constitute the elements of all our cognition, so that neither concepts without intuition corresponding to them in some way nor intuition without concepts can yield a cognition. Thoughts without content are empty and that intuitions without concepts are blind. It is, therefore, just as necessary to make the mind's concepts sensible—that is, to add an object to them in intuition—as to make our intuitions understandable—that is, to bring them under concepts. These two powers, or capacities, cannot exchange their functions. The understanding can intuit nothing, the senses can think nothing. Only from their unification can cognition arise” (1781/1787: A50–51/B74–76).

This is the reason why metaphysics doesn't yield any knowledge because there is something missing in the knowledge equation. Indeed, metaphysical ideas are lacking the corresponding perception from the sensible world. According to Kant, reason extends the use of a concept beyond the empirical “in order to give absolute completeness to the empirical synthesis through its progress towards the unconditioned” (1998: A 409). However, in its search for the *absolute totality* reason finds itself trapped in a series of antinomies for which no empirical evidence exists to support either the thesis or the antithesis. Thus, metaphysics as a science is impossible because reason extends the use of concepts of the intellect beyond the boundaries of all possible experience. However, this conclusion didn't lead Kant (1783) to accept Hume's (1748) radical recommendation to get rid metaphysics expressed in following passage:

“We take in our hand any volume; of divinity or school metaphysics, for instance; let us ask, Does it contain any abstract reasoning concerning quantity or number? No. Does it contain any experimental reasoning concerning matter of fact and existence? No. Commit it then to the flames: for it can contain nothing but sophistry and illusion” (Hume 1748: Section 12: 3).

On the contrary,

“That the human mind would someday entirely give up metaphysical investigations is just as little to be expected, as that we would someday gladly stop all breathing so as never to take in impure air. There will therefore be metaphysics in the world at every time, and what is more, in every human being, and especially the reflective ones; metaphysics that each, in the absence of a public standard of measure, will carve out for themselves in their own manner” (Kant 1783 4:367).

However, totally oblivious of this fact, Logical Positivism (Carnap 1935) would adopt Hume’s fork between “matters of fact” (that is, ideas derived from impressions) and “relations of ideas” (logical and mathematical propositions) to dismiss metaphysics altogether on the grounds that metaphysical statements are *meaningless* because there is no way to *verify* them empirically. Maybe this was inspired by Wittgenstein’s (1921) dictum: “whereof one cannot speak, thereof one must be silent” (7). Therefore, they argued that metaphysics should remain silent to avoid speaking nonsense and science should speak aloud its empirically verified statements.

Not convinced by the *verificationist* theory of meaning to distinguish science from pseudoscience, Popper (1963) claimed that philosophical theories are *irrefutable by definition*. However, irrefutability doesn’t preclude rational and critical assessments to distinguish between true and false theories.

“Every *rational* theory, no matter whether scientific or philosophical, is rational in so far as it tries to *solve certain problems*. A theory is comprehensible and reasonable only in its relation to a given *problem-situation*, and it can be rationally discussed only by

discussing this relation. Now if we look upon a theory as a proposed solution to a set of problems, then the theory immediately lends itself to critical discussion - even if it is non-empirical and irrefutable” (1963: 199).

Popper was right in believing that philosophical theories should aim to solve certain problems by providing rational arguments instead of experimental evidence. Regarding the demarcation between science and pseudoscience, he criticized fiercely the verificationist criteria on the grounds that theories had to be disproved instead of confirmed by empirical evidence, advocating a *falsifiability* criterion. So instead of trying to confirmed theories, what scientists do is try to find evidence to refute a given hypothesis.

Behind those two criteria there was in fact two different conception of the scientific method, the inductivist claiming that scientific theories are derived from observing particular cases and the deductivits claiming particular observation are deduced from assuming a particular theory. However, thought relevant for science, this discussion doesn’t bring any light into the demarcation between science and philosophy. To say that, unlike science, philosophy is irrefutable doesn’t say very much about the demarcation between philosophy and science.

So let us summarize the different demarcation criteria that have been proposed so far.

Proposals	Demarcation criteria
Hume	Ideas derived from impressions
Kant	Synthetic a priori propositions
Logical positivism	Empirically verified statements
Popper	Empirically falsifiable theories

Table 23. Different Demarcations between Philosophy and Science

What all these proposals have in common is that they believe that philosophy doesn’t derive its knowledge from experience but from intuition or revelation, and hence philosophy is mere pseudo-science. But is philosophy nothing more than sterile speculation or untamed illusion, something closer faith than to reason? Absolutely not, *philosophy is not divorced from experience and makes rational claims about reality*. So, is the demarcation between science and

philosophy a utopia after all? Something we cannot speak of, as Wittgenstein would put it? Is philosophy the realm of the unknown? No at all, philosophy is indeed different from science, indeed, but still knowledge after all, albeit of a different kind. Fortunately, after having put forward a new philosophy we are now in a better position to solve the demarcation problem.

So how does philosophy differ from science? I'm going to put forward four criteria that I have identified after reflecting on how I discovered my philosophical hypothesis. But in order to understand better my demarcation proposal let's recap what I said at the beginning of my inquiry about the nature of a world-hypothesis. Basically, *a world-hypothesis is a philosophical hypothesis that explains reality*. In particular, following the criteria I proposed to assess its explanatory power, a world-hypothesis needs to explain the *actual* reality we see; in a *rational* way which means the explanation must be logically consistent; the answers to the perennial problems of philosophy must be *intuitive*; and finally, the resulting world-hypothesis must be *completed* by the scientific hypotheses provided by science.

I think it meet this set of criteria quite well, but let's see if we can derive another set of criteria to demarcate philosophy from science. So what set of problems has my world-hypothesis answered? Firstly, reality is not predetermined by something independent because reality is a self-determined being. Secondly, the intrinsic structure of the universe is not a hierarchy of being because it contains mutually interdependent ontological levels. Thirdly, the mind is not separate from the body because knowledge depends on the unity between cognitive and conscious experiences. Finally, concepts don't have a part-whole structure of hierarchical predicates but a completion structure of interdependent attributes. Moreover, we saw that behind these perennial problems there were genuine philosophical questions: How is reality possible? How is the structure of the universe possible? How is knowledge possible? How is knowledge-structure possible? Given that Kant was the forerunner of this kind of *possibility-questions* in his Critique of Pure Reason, let's quote him at length:

“One has already gained a great deal if one can bring a multitude of investigations under the formula of a single problem. For one thereby not only lightens one's own task, by determining it precisely, but also

the judgment of anyone else who wants to examine whether we have satisfied our plan or not. The real problem of pure reason is now contained in the question: *How are synthetic judgments a priori possible?* [...] In the solution of the above problem there is at the same time contained the possibility of the pure use of reason in the grounding and execution of all sciences that contain a theoretical *a priori* cognition of objects, i.e., the answer to the questions: *How is pure mathematics possible? How is pure natural science possible?* About these sciences, since they are actually given, it can appropriately be asked how they are possible; for that they must be is proved through their actuality" (1787: B 21).

Besides introducing this type of questions into philosophy, Kant also made a crucial remark at the end of the quotation since the things he was investigating were already the case, that is, *actual*. That remark is very important since the questions we are trying to answer in philosophy are about actual things we observe as matters of fact, but for which we don't have good answers. For instance, the question 'how is reality possible?' doesn't question reality per se, but is asking for an answer that already assumes that reality is a given fact that needs explaining. Similarly, the question 'how is the structure of the universe possible?' takes for granted that the universe has an intrinsic structure. Next, as Kant says, that question 'how is knowledge possible?' presupposes that scientific knowledge is a matter of fact. And, finally, the question 'how is thought-expression possible?' presupposes that scientific knowledge is structured in concepts.

In short, philosophy takes the actual reality as a given and explains how it is possible. Therefore, the *philosophy I'm proposing is not unrelated to experience since it investigates the conditions of possibility of the actual reality*. However, instead of inferring empirical observations from a given hypothesis as science does using the hypothetico-deductive method, my philosophy infers the world-hypothesis from empirical observations using the hypothetico-inductive method. In particular, when applying this method of discovery, I always asked myself: *what are the conditions of possibility of the actual reality we observe as a matter of fact?*

In addition, besides inferring knowledge from experience, we also said that philosophy makes rational statements about reality. Indeed, a world-hypothesis has to provide a rational explanation to answer genuine philosophical questions. That is, it has to be free from logical contradictions. Another interesting aspect of this world-hypothesis is that each perennial question in philosophy needs to be addressed in a certain order because they are all interconnected. In fact, the question of thought closes the sequence in the unfolding of my world-hypothesis instead of finishing in a lose end, as the as the following diagram suggests.



Diagram 16. My World-Hypothesis

Lastly, the final crucial difference between science and philosophy that meets the criteria complementarity concerns the structure of the universe. This is very important in order to avoid confusing systems philosophy with systems science. From what I see in system sciences, the universe is a recursive structure of mutually interdependent systems, as we will see in the next part. That structure contains self-similar *levels of organization*. However, for systems philosophy, the structure of the universe contains different *ontological levels* which are mutually interdependent. As we will see, these two structures constitute one and the same universe.

Let's summarize the four criteria that solve the demarcation problem between science and philosophy.

Criteria	Philosophy	Science
Problems	Possibility-questions	Why-questions
Methods	Hypothetico-inductive	Hypothetico-deductive
Explanations	Rational-Intuitive	Rational-Causal
Universe	Ontological levels	Levels of organization

Table 24. My Demarcation Criteria between Philosophy and Science

Now that we know how philosophical knowledge looks like, let's proceed to the next chapter to understand the nature of causal explanations unique to science.

Part Four
Systems Sciences

Chapter 14

Aristotle's Theory of Causes

The Four Causes: material, efficient, formal and final causes

So what is a causal explanation? According to Aristotle (350 BCE), the first philosopher who treated causes thoroughly, to know is to know the 'why' or the cause of something, since causal explanations are answers to *why-questions*. In comparing live experience to wisdom, he wrote

“But yet we think that knowledge and understanding belong to art rather than to experience, and we suppose artists to be wiser than men of experience (which implies that Wisdom depends in all cases rather on knowledge); and this because the former know the cause, but the latter do not. For men of experience know that the thing is so, but do not know why, while the others know the 'why' and the cause. Hence we think also that the masterworkers in each craft are more honourable and know in a truer sense and are wiser than the manual workers [...] we view them as being wiser not in virtue of being able to act, but of having the theory for themselves and knowing the causes” (1924: 2).

Concluding that “wisdom is knowledge about certain principles and causes [and] since we are seeking this knowledge, we must inquire of what kind are the causes and the principle, the knowledge of which is Wisdom” (Ibid: 6)

So after reviewing of all his predecessors, Aristotle found that most philosophers have proposed one form of causality or another but believed that nobody until him understood them all. “Of the first philosophers, then, most thought the principles which were of the nature of matter were the only principles of all things” (Ibid: 8). Thus, they were concerned with the *material cause*, or the subject of change. However, “others have mentioned the source of movement” (Ibid: 16). That is, the *efficient cause*. Unfortunately, in referring to Plato (387 BCE), “the *essence*, i.e. the substantial reality, no one has expressed distinctly. It is

hinted at chiefly by those who believe in the Forms; for they do not suppose either that the Forms are the matter of sensible things, and the One the matter of the Forms, or that they are the source of movement (for they say these are causes rather of immobility and of being at rest), but they furnish the Forms as the essence of every other thing, and the One as the essence of the Forms.” (my italics, Ibid: 16)

As we saw earlier, Aristotle didn't separate Forms from individual substances; beings were a composite of matter and form, and thus, the essence of a being was the *formal cause* of that being, arguing that the essence is a cause of change. By formal cause, “we mean the substance, i.e. the essence (for the 'why' is reducible finally to the definition, and the ultimate 'why' is a cause and principle)” (Ibid: 8)

Therefore, the definition of a being, what it is, its essence, is a cause, according to Aristotle.

Finally, the *final cause*, “that for whose sake actions and changes and movements take place, they assert to be a cause in a way, but not in this way, i.e. not in the way in which it is its nature to be a cause” (Ibid: 16).

In summarizing his theory of causes of change,

“Evidently we have to acquire knowledge of the original causes (for we say we know each thing only when we think we recognize its first cause), and causes are spoken of in four senses. In one of these we mean the substance [the essence]; in another the matter or substratum, in a third the source of the change, and in a fourth the cause opposed to this, the purpose and the good (for this is the end of all generation and change)” (Ibid: 8).

So he found these four causes to be the subject of a science called wisdom and believed that his theory of causes was complete. I also believe that in order to understand how systems operate within systems, systems science also needs four causes, but I would never consider, like Aristotle did, the definition of systems, its essence to be a cause of change. Instead, *a system's individuality is the product of its activity.*

Modern Reactions to Final and Formal Causes

We have briefly introduced Aristotle's theory of causes (material, formal, efficient and final) and questioned the formal cause as a cause of change because the essence doesn't determine a system's activity. But before I propose a theory of causal explanations, let see what modern philosophers had to say about Aristotle's causes and causation itself.

I would say that the first modern philosopher to question the usefulness of all four causes in science was in fact the credited father of the experimental method, Francis Bacon (1605).

In keeping with antiquity, he wrote that

“Physique should contemplate that which is inherent in matter, and therefore transitory; and Metaphysique that which is abstracted and fixed [...] the inquiry of causes we do subdivide according to the received and found division of causes; the one part, which is Physique, inquireth and handleth the *material and efficient cause*; and the other, which is Metaphysique, handleth the *formal and final causes*” (1861: 93).

This would set a trend in modern science so it would investigate only the material and efficient causes since the formal cause, according to Bacon, “made too untimely a departure and too remote a recess from particulars [and] the *inquiry of final causes* [...] hath caused a deficiency, or at least a great improficiency in the sciences themselves” (Ibid: 95-97).

Similarly, Descartes (1644), the father of modern philosophy, whom saw the universe as made of material bodies and immaterial minds, only made use of the efficient cause to understand the causal interaction between bodies, between the mind and the body and between God and the universe. Hobbes (1655), however, loyal to his materialism, would be more restrictive in allowing only the efficient cause to explaining the interaction among bodies. Likewise, Spinoza (1667) rejected the final cause as a ‘human fiction’ since the efficient cause was the only “*adequate cause* whose effect can clearly and distinctly be perceived through it” (Part III, D. 1).

Yet, the memorable attack on causality came from Hume (1738) who claimed that the *relation between cause and effect* didn't have a rational justification but rested on habit. Let's remember the argument. According to Hume, all ideas come from impressions, but when we look at the impressions from which the idea of causality arises, we only observe a *constant conjunction* of objects: "one object is precedent and contiguous to the other" (2000:114). However, from observing repeated instances, our mind infers the idea of a *necessary connection* between objects just like "the necessity, which makes two times two equal to four, or three angles of a triangle equal to two right one [...] lies in the determination of the mind to pass from the one to the other" (Ibid: 112). Therefore, causality is based on custom not reason, we are so used to observing that constant conjunction of objects that our imagination unities them in the mind with the same necessity as the "relation of ideas" (logical and mathematical propositions). In short, there is no necessary connection between events and causality is something projected by our imagination.

Chapter 15

Kant's Theory of Causes

But why search for a rational justification of the relation between cause and effect if this is not a logical relation after all? Kant (1787) was the first to point out that causality cannot be justified on logical grounds. Thus, he agreed with Hume but didn't give up on the idea of necessity. Instead, that necessity of causality comes from being a pure concept of the intellect that connects phenomena in a temporal succession.

“The concept, however, that carries a necessity of synthetic unity with it can only be a pure concept of understanding, which does not lie in the perception, and that is here the concept of the *relation of cause and effect*, the former of which determines the latter in time, as its consequence, and not as something that could merely precede in the imagination (or not even be perceived at all). Therefore it is only because we subject the sequence of the appearances and thus all alteration to the law of causality that experience itself, i.e., empirical cognition of them, is possible; consequently they themselves, as objects of experience, are possible only in accordance with this law” (B 232-234).

Thus, Kant believed he had demonstrated that causality is not a projection of our imagination but an a priori concept of the intellect that connects phenomena in a temporal relation. However, though he was right in pointing out that the causal relation is not a *logical relation*, the conclusion necessarily following the premises, Kant was wrong in believing it was an *a priori relation*, the effect necessarily following the cause. Causality is not an a priori concept of the intellect connecting phenomena in a *succession relation*. On the contrary, a causal relation is a unity between ideas and perceptions, that is, between conscious and cognitive experiences, thus, an *actual experience*.

Regarding the types of causes, Kant gave priority to efficient causation as a constitutive concept to explain nature, but didn't completely disregard final causation as a regulative concept to explain biological phenomena. Unlike

machines, organisms display a *causal interdependence* between the parts. Moreover, this causal relation is an a priori concept that comes from judgment instead of the intellect.

According to Kant (1790),

“This faculty, with its concept of a *purposiveness* of nature, provides us with the mediating concept between concepts of nature and the concept of freedom—a concept that makes possible the transition from the purely theoretical to the purely practical and from conformity to law in accordance with the former to final ends in accordance with the latter” (2007: 31).

Basically, judgement is an intermediate faculty that acts as a bridge between the intellect and reason as the following table provided by Kant shows (Idid: 32).

Faculties of the Mind	Cognitive faculties	A priori principles	Application
Cognitive faculties	Intellect	Conformity to law	Nature
Feeling of pleasure and displeasure	Judgment	Purposiveness	Art
Faculty of desire	Reason	Final end	Freedom

Table 25. Kant’s Types of Causes

What is interesting is that in this table we can see the three forms of causality that Kant tried to integrate in this philosophical system to justify the freedom of moral agents which live in a deterministic universe.

Causal Interaction versus Causal Interdependence

However, what is less known is that Kant (1787) introduced in the Critique of Pure Reason another kind of causal relation derived from a particular kind of judgement in logic; namely, the disjunctive judgement that relates to mutually exclusive propositions. Let’s follow his example:

“The world exists either through blind chance or through internal necessity or through an external cause. Each of these propositions embraces a part of the sphere of our possible knowledge as to the

existence of the world [...] they mutually exclude each other, yet thereby determine, *as a whole*, the true knowledge, inasmuch as, taken together, they make up the complete content of a given cognition” (B 99).

Kant terms this forms of causality *community* which differs from finality because is not internal to beings, but between substance. “Community is the causality of a substance, reciprocally determining, and determined by other substances” (B 111). Moreover, unlike finality, the causal relation is one of *reciprocal interaction* between the parts of the *aggregate*, the community. And, unlike causality, there is a *simultaneous* relation between phenomena existing at the same time. What is interesting about this reciprocal interaction between parts is that it doesn’t differ at all from the prevailing concept of system, a system as an aggregate of reciprocally interacting parts. However, when Kant is mentioned as a forerunner of systems thinking, it is normally his concept of finality that is taken as evidence, a system as an organism of causally interdependent parts.

Having said this, what is common in both finality and community is what is causally related, namely, the *parts* either of an organism or of an aggregate. However, finality differs from community because the parts are not the cause of the whole but instead the *parts are the cause and effect of each other*. Maybe without being aware, Kant was in fact introducing a different causal relation that was in stark contrast with community and causality which presuppose a causal interaction between phenomena, whereas *finality presupposes a causal interdependence between the parts of a whole*. In short, the reciprocal interaction and causal interdependence are not synonymous causal relations.

Deep down Kant (1790) was trying to reconcile causality with finality as the following passage suggests:

“An organized being is, therefore, not a mere machine. For a machine has solely *motive power*, whereas an organized being possesses inherent *formative power*, and such, moreover, as it can impart to material devoid of it—material which it organizes. This, therefore, is a self-propagating formative power, which cannot be explained by the capacity of movement alone, that is to say, by mechanism” (2007: 202).

Thus, Kant wanted to conceive the universe both as an organized being and as an aggregate being but didn't realize that he was holding onto two incompatible world-images at once: the universe as an aggregate made of mutually interacting parts and the universe as an organism made of causally interdependent parts. In fact, I have identified a passage from the Critique of Pure Reason in which Kant (1787) is more explicit about the difference between those two universes.

“We have two expressions, *world* and *nature*, which are sometimes run together. The first signifies the mathematical whole of all appearances and the totality of their synthesis in the great as well as in the small, i.e., in their progress through composition as well as through division. But the very same world is called nature insofar as it is considered as a dynamic whole and one does not look at the aggregation in space or time so as to bring about a quantity, but looks instead at the unity in the *existence* of appearances” (B 447).

Unlike the world, nature is not an aggregate whole but a dynamic unity. Then why call nature a “dynamical whole” if it is a *unity* that doesn't have parts like an aggregate? Moreover, *if we accept that the universe is an organized being, then we have to give up on the concept of causal interaction altogether*. What I'm claiming is that the new world-image that we have been crafting needs a different form of causal relation more akin to Kant's concept of causal interdependence. However, this also means leaving behind the world-image of the universe as an aggregate being of interacting parts, which Kant never did. That is, the causal interdependence is never between parts, as Kant thought. If he wanted both universes he had to give up one or the other. In short, if the universe is not an aggregate, then the causal interdependence doesn't apply to parts but to other things which we are about to discover.

Chapter 16

A Theory of Causal Explanations

After this brief review of Aristotle's theory of causes and Kant's forms of causality, I still agree with them that we cannot reduce all scientific explanations to a couple of causes (namely, the efficient and material causation) if we want a complete explanation of a system's activity. Moreover, we cannot restrict the final cause to biological systems and the efficient cause to physical systems, just like we cannot explain all systems through physical explanations alone, as Modern science has tried to do. What we need is a theory of causal explanations that applies to all the types of systems regardless of whether they are physical, biological, cognitive or conscious systems. And we cannot prioritize some causes over others, such as the formal and final causes over efficient and material causes, as Aristotle did, or the efficient cause over the final cause, as Kant recommended. Therefore, paraphrasing Newton (1676), we need a new theory of causes that stand on the shoulder of those two giants.

So let's start with the implicit distinction between *intrinsic and extrinsic causes* in Aristotle's theory. This distinction is not between internal and external causes but between causes that come from the *nature of a being* and causes that come from *something else*. Therefore, it is closer to the distinction between endogenous and exogenous. According to Aristotle's (350 BCE), the final and the formal causes are intrinsic and the material and efficient causes extrinsic. Even though it is a sound distinction, the material and the formal cause are linked to his hylomorphic ontology; that is, individual substances are composites of matter and form. This means that a theory of causes based on a different ontology, needs to replace them.

A second distinction is between *temporal and spatial causes* implicit in Kant's forms of causality. Causality and community are temporal relations between phenomena and finality is a spatial relation between the parts of an organism. Here we will need to abandon the community cause since it implies an aggregate universe made of mutually interacting parts and, hence, if the universe is an organized being without parts, finality will need to be reassessed.

Autonomy cause

We will enter my theory of causal explanations by opening the door of my world-hypothesis. The philosophical hypothesis depicts the intrinsic structure of reality, but now we are about to enter the extrinsic structure of reality; that is, systems embedded in systems. In other words, in the philosophical journey so far depicted, the universe has appeared as a self-contained macrocosm of mutually dependent territories of reality. However, every system is also a self-contained microcosm of mutually dependent ontological levels, but self-contained doesn't mean isolated from every other microcosm, so causal explanations are about understanding how systems embedded in other systems operate. So our point of departure assumes what my world-hypothesis told us as regards self-contained systems, which are not isolated from each other but share one and the same universe. Moreover, the fact that systems are inside systems in the universe doesn't mean that the universe is contained in another universe, since the intrinsic structure of the universe is infinite.

So let us begin with introducing the *intrinsic-spatial cause*, which corresponds to the autonomous microcosms of mutually dependent ontological levels that act as one because they are determined by an individual will. However, as we saw, that mutual dependence between ontological levels rules out upwards and downward causation, even causation as such, since causation only enters the picture when we need to explain the interrelations between systems. In short, *there is no causal relationship between ontological levels; only between systems*. Moreover, just like the universe cannot be autonomous unless its intrinsic structure acts as one single being, a system inside the universe acts as one because its will directs its intrinsic structure. This individual will that directs its intrinsic structure is the *autonomy cause*. Finally, the autonomy cause is not limited to systems with at least two ontological levels, as Hartmann believed. A system containing just one ontological level, such as quantum system, is also directed by an individual will and, hence, a self-determined system.

So what are the rest of the causes, if we have eliminated the formal, the material and the community cause? Well, we still have the efficient and the final cause, but we will need to find another one if we want to complete the theory of causal explanations.

Heteronomy cause

But let's start with the one we are missing which occupies the place of the *extrinsic spatial cause* in our next table. We can term it the *heteronomy cause* in Kant's honour.

In the *Groundwork of the Metaphysics of Morals*, Kant (1785) contrasted two principles of morality: autonomy and heteronomy. In the first case, someone "is subject only to laws which are made by himself [...]" and that he is bound only to act in accordance with a will which is his own" (100). In the second case, someone is "subject to a law (whatever it might be) [that] did not spring as a law from *his own* will: in order to conform with the law his will had to be necessitated by *something else* to act in a certain way" (Ibid.). Kant gives two kinds of heteronomous principle: the empirical and the rational. The former are related to the pursuit of happiness through the satisfaction of the natural senses or moral feelings and the latter to the pursuit of perfection through the cultivation of our natural talents or the obedience to the will of God. In both cases, the will is not autonomous because it acts following principles that don't come from itself but from something else. Thus, if someone is obeying something extrinsic then he is not autonomous at all. However, Kant assumed that the cognitive level of a human being is something extrinsic, yet I claim it to be something intrinsic to the nature of a human being, which in fact enables its autonomy.

Leaving aside this Christian conflict between the body and the soul, Kant was pointing to an extrinsic constraint on human activity. But it was in fact in a previous booklet entitled *What Is Enlightenment?* (1784) that he was more explicit about what he meant by heteronomy.

Let's quote the first passage:

"Enlightenment is man's emergence from his self-imposed immaturity. Immaturity is the inability to use one's own understanding without another's guidance. This immaturity is self-imposed if its cause lies not in lack of understanding but in indecision and lack of courage to use one's own mind without another's guidance. Dare to know! (Sapere aude.) "Have the courage to use

your own understanding," is therefore the motto of the enlightenment (Kant 1784: 1).

So what causes of heteronomy does Kant mention in this booklet? Basically, things like the Church or a paternalistic State, which make humans dependent on something other than themselves. Though Kant saw heteronomy as something morally bad per se, calling this dependence immature and guilty, I would say that dependence is not something necessary negative. It is only bad if we have a pessimistic conception of the human being. Indeed, according to Kant (1784), besides the internal conflict between sensibility and reason, there also exists an antagonism between the individual and society.

"The means which Nature employs to bring about the development of all the tendencies she has laid in Man is the antagonism of these tendencies in the social state [...] By antagonism of this kind I mean the unsocial sociality of man —that is, a tendency to enter the social state, combined with a perpetual resistance to that tendency which is continually threatening to dissolve it" (1784: Prop. 4).

To get a better picture of the heteronomy cause, Beer's (1979) work is rather helpful to understand the dependence on extrinsic structures. Contrary to the standard hierarchical view of organizations, Beer recommends a different device to explore the organizational structure.

"Divide the notion of the viable system into two, and to form a *logical* hierarchy of these two parts, dividing the notion of a viable system into two. One part consists essentially of the *operational elements* of the viable system [and] whatever else is needed to manage the collection of operational elements is METASYSTEMIC to that. It is something logically beyond (that is, meta) the logic of the operational elements combined" (1994: 116).

What is important about this distinction is that the extrinsic structure in which the system is embedded provides it with the necessary and sufficient conditions to be viable; that is, "able to maintain a separate existence" (Ibid: 113). This means that the system and the metasytem are causally interdependent. In other words, the system and the metasytem are in the same boat.

In turn,

“The metasytem of any one viable system is an operational element in another viable system *at the next level of recursion* [...] Now it is possible to state a theorem, like this **Recursive System Theorem** [...] If a viable system contains a viable system, then the organizational structure must be recursive” (Ibid: 117-118).

Beer understood that systems can only be embedded in other systems if they share the same organizational structure, that is, the extrinsic structure has to be self-similar. In other words, the organizational structure is scale invariant. This means that the metasytem at the next level of recursion is embedded in a self-similar structure. Therefore, all recursive levels of a system are causally interdependent.

An interesting picture emerges since system’s autonomy is a function of intrinsic and extrinsic structures; that is, system’s autonomy is causally dependent on its intrinsic and extrinsic levels. In a nutshell, *all and every system in the universe is autonomous being, including the universe itself.*

	Intrinsic	Extrinsic
Space	Autonomy cause: causal interdependence between ontological levels enabling the system’s activity	Heteronomy cause: causal interdependence between recursive levels affecting the system’s activity
Time	Finality cause: causal interdependence between ends directing the system’s activity	Efficient cause: causal interdependence between powers triggering the system’s activity

Table 26. My Theory of Causal Explanations

Finality cause

After having introduced the spatial dimension, we will now continue discussing the temporal dimension of causes which is more familiar to us since we have been struggling to understand them since the days of Aristotle. Let’s start with the *temporal intrinsic cause*, namely, the *finality cause*. As we know from my philosophical hypothesis, all systems in the universe are goal-directed, even the universe itself. The universe itself is purpose-driven. The most firm advocate of

the teleological image of the universe was Aristotle (350 BCE) yet Kant (1790) also accepted it as a regulatory principle, though he was more sympathetic with the mechanical image. This led him to assume two incompatible universes resulting from different causes, the mechanical universe ruled by the efficient cause and the organized universe ruled by the finality cause. This is very symptomatic of Kant's philosophical system which always tried to integrate antinomies as if the solution always resulted from mutually excluding positions. However, the commitment to the unity of opposites had a price that Heraclitus (535-475 BCE) paradoxically denied: "Those who are awake all live in the same world" (Fragment 89). We cannot integrate two opposing world-images because, as Goethe (1825) wrote, "it is always the same world that lies open to our view" (1998: Fragment 309). There are no parallel universes or multiverses. This position is reminiscent of Leibniz's (1714) preestablished harmony between the realm of grace inhabited by monads and the realm of nature inhabited by bodies. However, unlike Leibniz's parallel realities, Kant's (1790) beings as organisms mutually interact with one another resulting in an aggregate in which they become organs of the whole. In other words, the horizontal relation between parts of an organism is converted into a vertical relation between the parts and the whole. The parts are subordinated to the whole; the dynamical unity to the aggregate whole. Organic parts pursue ends, indeed, but those ends become means of an organic whole.

"An organized natural product is one in which every part is reciprocally both end and means. [...] everything in the body must be regarded as organized, and everything, also, in a certain relation to the thing is itself in turn an organ (Kant 2007: 204-205).

It is clear to me that if we conceive the universe as an aggregate whole the hierarchical relation between the parts and the whole is unavoidable; the parts serve the purpose of the whole, and thus the universe as an aggregate whole would be the only autonomous being in the universe. Yet how can we justify that every being in the universe is goal-directed if systems are inside systems? Logically, if a system is inside another system, how can they both be autonomous at the same time? If the embedded system is autonomous, then the containing system is not. Conversely, if the containing system is autonomous, then embedded system cannot be. The conclusion seems straight forward: either the embedded system serves the ends of the containing system or the containing

system the ends of the embedded system. To use Hegel's dialectic, one must necessarily be the slave and the other the master.

The solution to this apparent antinomy is not to assume that there is a conflict or zero-sum between the ends pursued by different systems. The end pursued a system is not the sum of the ends pursued by the embedded systems, but the mutual interdependence between ends pursued at different levels of recursion. As Beer (1985) noticed, "the SYSTEM WILL CONVERGE ON A COMPROMISE PURPOSE- it is neither what the higher recursion would most like to see done, nor what the viable system itself would most like to indulge in doing" (1990:99). That is, the embedded system and the containing system have causally interdependent ends. The word 'causal' here is crucial because we are not talking about intended but *actual* ends directing the system's activity.

Efficient Cause

Let's finish our theory of causes with the *temporal extrinsic cause*, that is, the *efficient cause*. Again, we are lucky here, the philosophical hypothesis has already provided us with this form of causality since they are the sort of "things" which we found triggered different territories of reality, so it will be enough to produce a table including them all (Table 24).

Territories of Reality	Triggers
Consciousness	Experiences
Cognition	"Differences"
Life	Stimuli
Matter	Forces

Table 27. Efficient Causes triggering different Territories of Reality

Again, the causal relation between extrinsic powers within each territory of reality, which we will see in the next chapter, is one of causal interdependence. That is, there is no causal interaction between phenomena. I think Mach (1905) and Russell (1929) were the first to notice that advanced sciences had replaced that notion of causality with that of functional dependence:

“In the higher developed sciences the use of the concept of cause and effect is more and more restricted and increasingly rare. The reason is that these concepts characterize a state of affairs only in the preliminary and incomplete manner and that they lack precision [...] As soon as one succeeds in characterizing the elements of events through measurable quantities [...], the dependencies among these elements can be represented much more completely and more precisely with the help of the concept of function than through the indeterminate concepts of cause and effect” (Mach 1905: 278).

In the case of Russell,

“No doubt the reason why the old "law of causality" has so long continued to pervade the books of philosophers is simply that the idea of a function is unfamiliar to most of them, and therefore they seek an unduly simplified statement [...] it is not in any sameness of causes and effects that the constancy of scientific law consists, but in sameness of relations. And even "sameness of relations" is too simple a phrase; "sameness of differential equations" is the only correct phrase” (1929: 395).

Exactly, the functional dependence between variables in differential equations expresses the *causal interdependence relation* we have found in all types of causal explanation. The only difference is that what is related in each dimension is different. However, *there is only one universe of causally interdependent systems populating a space-time-intrinsic-extrinsic continuum and not four parallel dimensions of reality*. Thus, it doesn't make sense to talk about a mechanistic universe and a teleological universe, the former ruled by the efficient and the latter by the finality cause. We are not trying to integrate mutually excluding world-views as Kant did. Finally, we have completed a theory of causal explanations or why-questions answered by science using the hypothetico deductive method. In the next chapter, we will see how far systems science has taken us in this direction.

Chapter 17

The State of Systems Science

We have said, according to systems science, that the universe is an extrinsic structure of causally interdependent systems. But is this only a speculative hypothesis of natural philosophy, as science use to be called? If not, is there any empirical evidence available to support this claim? In short, what is the state of systems science? Well, I don't want to leave out any systems scientists who are contributing to enrich this world-image, but to my understanding there are several exemplars already to prove my point.

Causes in physical systems

We have already mentioned Beer, Maturana and Varela in the passing. All of them accepted a form of final causality in nature. However, to my understanding no scientist has claimed this for physical systems, maybe with the exception of Bohm (1980).

“The notion of formative cause is relevant to the view of undivided wholeness in flowing movement, which has been seen to be implied in modern developments in physics, notably relativity theory and quantum theory. Thus, as has been pointed out, each relatively autonomous and stable structure (e.g., an atomic particle) is to be understood not as something independently and permanently existent but rather as a product that has been formed in the whole flowing movement and that will ultimately dissolve back into this movement. How it forms and maintains itself, then, depends on its place and function in the whole. So, we see that certain developments in modern physics imply a sort of insight into nature that is in respect to the notions of formative and final cause” (1980: 17-18).

His notion of implicate order pictures the universe as a wholeness of internally related physical systems which is contrasted with the mechanistic universe of

externally related physical entities that exist independently in different regions of the universe. This distinction between "internally related" (implicate order) and "externally related" (mechanistic order) is crucial. I think it captures my distinction between "causal interdependence" and "causal interaction", the former is a picture which I favour of systems inside systems, where there is no "outside", and the latter a world of things that live outside of each other. In short, externally related things causally interact and internally related things are causally interdependent. That interaction can be between the parts (horizontal) or between the parts and the whole (vertical), but it's nevertheless a causal interaction. The horizontal causal interaction between atoms is the classical mechanistic universe and the vertical causal interaction between the parts and the whole is the aggregate universe made of 'extensive' things occupying space.

For me to assume the latter is to accept a hierarchical relation between the parts and the whole, the parts are subordinated to the whole. However, if we assume a causal interdependence between levels of recursion, the embedded systems are no longer subordinated to the containing system but mutually interdependent. Another way to see it is to question that the embedded systems (organs) are mere means of the containing system (body) serving its ends. On the contrary, there is a causal interdependence between the ends pursued by different levels of recursion.

Clearly, Bohm's implicate order implies a universe of causally interdependent systems with a function in the whole. However, like Kant (1790), Bohm also fell prey to the mechanistic universe which he names the explicate order and is the observable manifestation of the implicate order. Furthermore, the end of a physical system appears in the explicate order.

"A general relationship (or law) expressing a force of necessity which binds together a certain set of the elements of the implicate order in such a way that they contribute to a common explicate end (different from that to which another set of inter-penetrating and intermingling elements will contribute) (Ibid 248).

One thing which I find strange is to consider the implicate order as existing in a pre-space and the explicate order in space-time. My understanding is that there is just one 'way of being' not two parallel realities as Bohm advocates. Anyway, if we

dismiss the explicate order, we can still think in the implicate order as a set of causally interdependent ends in the spacetime continuum.

Moreover, physical systems inside the implicate order are relatively autonomous.

“Indeed, ‘the law of the whole’ will generally include the possibility of describing the ‘loosening’ of aspects from each other, so that they will be relatively autonomous in limited contexts [...] However, any form of relative autonomy (and heteronomy) is ultimately limited by holonomy” (Ibid: 198).

“This form of the law of a relatively autonomous sub-totality [...] is to be considered as universal” (Ibid: 248).

This universal law is the autonomy cause applied to physical systems. To my knowledge, Bohm is the first scientist to claim both the teleological and autonomous character of physical systems. It is true that Kant granted finality to the universe but only as an organism, never to physical systems, and autonomy only to rational being, that is, human systems. Not even Hartmann, the father of the “autonomy in dependence” relationship, for which the physical systems were not autonomous either, had this insight.

We have also seen that Bohm mentions that this autonomy is influenced by holonomy, which corresponds to the heteronomy cause in our language. My choice of the term tries to avoid the whole-part connotation associated with the word ‘holon’. Otherwise, we will uncritically commit to see the universe as an aggregate whole and assume a hierarchical relation between the parts and the whole. In short, I don't think the universe is a holarchy which for me is synonymous to 'holonomy'. Moreover, a holarchy implicitly assumes that the parts exist inside the whole and the whole outside the parts. To use the language of systems thinking, the whole is an emergent property that comes “out” of the interaction of the parts. But if so, is the whole externally related to the parts? I think the picture of the universe I've developed of things inside things differs fundamentally from a universe of things 'coming out' or 'existing outside' of things. If wholes come out of the interaction of the parts, this means that we are accepting a universe in which systems *come out* of parts and I'm saying that there is no outside in the universe since systems are inside systems.

Anyway, what evidence do we have of the heteronomy cause in physical systems? Science is also on our side this time. In particular, an interpretation of quantum mechanics which had its precursor in De Broglie (1927) but is also associated with Bohm (1952), namely, the *pilot-wave theory*. As we know, the correct interpretation of quantum mechanics is an open question. All the predictions made by quantum mechanics have so far proven correct but nobody seems to understand what the mathematical equations are expressing.

In fact, one of the crucial experiments that contradict the fundamentals of the mechanistic world-image are *Bell's inequality experiments* (1964). What the experiments show is a strange phenomenon called *quantum entanglement*. There is an entanglement between particles that are not directly influenced by the immediate surrounding; that is, "action at a distance". This contradicts the principle of locality that says that an object can only be directly influenced by its immediate surroundings. How is *non-local action* between particles possible in a mechanistic universe ruled by causal interaction?

Furthermore, in a mechanistic universe particles are outside of each other and, hence, context-independent. However, the *double-slit experiment* where particles pass through a screen with two holes shows that the trajectory of particles is affected by a wave. That is, particles are embedded in waves and, hence, particles are *context-dependent*. Indeed, the father of the former experiment understood clearly the predictions of the pilot-wave theory.

"De Broglie showed in detail how the motion of a particle, passing through just one of two holes in the screen, could be influenced by waves propagating through both holes. And so influenced that the particle does not go where the waves cancel out, but is attracted to where they cooperate. This idea seems to me so natural and simple, to resolve the wave-particle dilemma in such a clear and ordinary way, that it is a great mystery to me that it was so generally ignored."
(Bell 1986: 191).

Let's let De Broglie formulate the basic idea of the pilot-wave theory: "A freely moving body follows a trajectory that is orthogonal to the surfaces of an associated guiding wave" (Bacciagaluppi and Valentini 2009: 27). Again, there is no reciprocal interaction between the particle and the wave, as in classical

physics, but a causal interdependence between recursive levels affecting the particle's activity. Moreover, the theory also explains "action at a distance" since the wave affects the trajectory of distant particles embedded in a containing wave. In other words, quantum entanglement is none other than quantum embeddedness of particles in a physical system, since there nothing existing outside of everything else because everything is inside something.

Lastly, the four accepted famous fundamental forces (gravitational, electromagnetic, strong nuclear and weak nuclear) are not causal interactions between independent entities existing outside of each other. On the contrary, there is no outside in the universe because systems are causally interdependent entities existing inside of each other. Therefore, there is no external relationship between systems that reciprocally interact through forces, but a causal interdependence between forces that trigger the activity of physical systems. Furthermore, that interdependence is already assumed when forces are conceived as mutually dependent fields. A good example is the combination of the electric field and the magnetic field since they are causally interdependent forces. In addition, that mutual dependence varies according to the scale of the universe, at subatomic level the two nuclear forces prevail and at the scale of planets and galaxies gravitation is the dominant force.

Causes in living systems

Now let's look at what systems scientists have discovered about how living systems operate. We can mention Rosen and the cooperation between Maturana and Varela who developed two resembling theories of organisms, as has already been noticed by Poli (2010):

"Robert Rosen's (M,R)-systems [Rosen 1958] are the simplest mathematical models mimicking autopoietic systems. In this regard, it is worth noting that Rosen's proposal antedates Maturana's by more than twenty years" (2010: 25).

The resemblance is much deeper if we take into account that both assumed Rashevsky's (1954) dictum: "throw away the matter and keep the underlying organization" (Rosen 1991: 119). Despite the merits of both theories, this is

reminiscent of Aristotle's matter and form dualism, in which matter is a passive receiver of an active form. However, as we have seen, physical systems are also autonomous beings. Moreover, in the connection with the former, both theories of organisms assume that physical systems are machines; that is, there is a mechanistic universe at the level of matter, but an organized universe at the level of life. That is why Rosen distinguishes "a material system [that] is an organism" from a material system that is a "machine", and Maturana and Varela (1980) calls a living system an "autopoietic machine". Matter is seen by them as the passive substrate of biological processes. This dualism is more explicit in the theory of autopoiesis where *organization* is distinguished from *structure*:

"The relations that define a machine as a unity, and that determine the dynamics of interactions and transformations which it may undergo as such as unity, constitute the *organization* of the machine. The actual relations which hold among the components which integrate a concrete machine in a given space, constitute its structure" (1980:77).

It seems to me that *organization* is conceived as the formal cause, which Kant identified with the final cause in biological phenomena and Bohm with the final cause in physical phenomena. Indeed, the formative force was for Kant and Bohm the finality cause in nature but for these systems biologists is still Aristotle's formal cause. And, as in Kant, organization is opposed to mechanism, which is more explicit in the case of Rosen. In short, Kant, Rosen, Maturana and Varela all believe that the mechanistic universe is deficient to understand how living systems operate and, hence, they propose other forms of explanation such as the final or the formal cause of living matter, which reminds us to Aristotle's identification of formal with final causes.

Anyway, now that we have introduced some caveats, let's see how living systems operate according to both Maturana and Varela's and Rosen's theories of organism. Even though Autopoiesis came later, I think is a good way to start.

"An autopoietic machine is a machine organized as a network of processes of production (transformation and destruction) of components that produces the components [and] subordinate[s] all

changes to the maintenance of [its] own organization” (Maturana and Varela 1980: 79-80).

In contrast,

“Other machines, henceforth called allopoietic machines, have as the product of their functioning something different from themselves (as in the care example). Since the changes that allopoietic machines may suffer without losing their definitory organization are necessarily subordinated to the production of something different from themselves, they are not autonomous” (Ibid: 80).

That is, autopoietic machines self-produce themselves, which means that the embedded systems are fabricated by the containing system, whereas allopoietic machines produce something different from themselves. In other words, the embedded components are causally dependent on the containing system which produces them. Unlike allopoietic systems, autopoietic systems are autonomous because they produce themselves. What is not so clear is whether the embedded systems are also autonomous systems since they are produced by “something different from themselves”. We’ll get to this point later on but let’s see first what Rosen has to say about living systems.

According to Rosen, “*a material system is an organism if, and only if, it is closed to efficient causation*” (1991: 245). That is, if f is any component of such a system, the question “why f ?” has an answer within the system, which corresponds to the category of efficient cause of f . What this formulation means is that the causal relation in an organism is an *internal relation* between causally interdependent components, whereas the causal relation in a machine is an external relation between events. Rosen proposes, with the following block diagram, one possible relational model of organisms to prove this point, the (M,R)-System endowed with two functions, namely, metabolism (M) and repair (R).

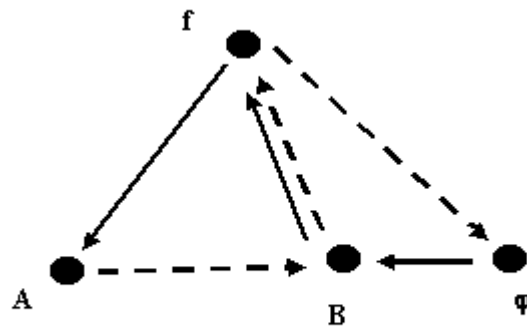


Diagram 17. (M,R)-System Relational Model

(A is the set of inputs and B is the set of its outputs; ϕ the 'repair' component and f the 'metabolic' component)

"In this graph, every function is indeed entailed by another function in the graph itself [...] Any material system possessing such a graph as a relational model (i.e, which realizes that graph) is accordingly an organism" (Rosen 1991: 251-252).

What is interesting is that Maturana and Varela stress the *causal dependence* of the components on the system which produces them, and Rosen the *causal interdependence* between the components of the system. That is, the former a vertical relation between the system and its components, that is, the components depend on the system; and the latter a horizontal relation of mutual dependence between the components. Having said this, Rosen (1991) does introduce the vertical relation at the end of *Life Itself* entailed by the theory of organism:

"Every (M,R)-system is thus, in itself, a little theory of fabrication. To realize an (M,R)-system is to produce a kind of factory, within which another kind of factory is itself entailed [...] It becomes especially interesting when the system to be fabricated is itself an (M,R)-system (and in particular, a replicating (M,R)-system) (1991: 252-253).

Furthermore, he argues that "the chain of entailments involved in fabrication of a system is completely different from that underlying the operation of the system" (xviii). I think that Rosen was close to acknowledging the causal interdependence

between levels of recursion affecting the organism's activity. It is a pity that he didn't pursue this line of inquiry any further, though he intended to do so.

“An entirely new feature manifests itself precisely here; because organisms embody so much entailment, a relational theory of organisms is also a general theory of fabrication. These remarks will provide the point of departure for subsequent volumes” (xviii)

“But we are in a good position now from which to launch an ascent; all the tools are now in our hands. Indeed, readers do not have to wait upon me: from where they stand now, they can set out on this journey for themselves, any time they care to” (Ibid: 253).

I think we are ready to pick up the discussion left open regarding the theory of autopoiesis: are the embedded systems in an autopoietic system also autonomous? There are several passages in which Maturana and Varela (1980) are rather ambiguous about the answer since, according to them, it depends on the observer:

“An autopoietic system can become a component of another system [and] participate in the realization of this other system [...] which results in a subordination of the individual component autopoiesis. [Thus], an observer can describe an autopoietic component of a composite system as playing an allopoietic role in the realization of the larger system which it contributes to realize through its autopoiesis. In other words, the autopoietic unity functions in the context of the composite system in a manner that the observer would describe as allopoietic” (1980: 110).

However, a few lines after, they claim that embedded systems lose their autonomy in the higher recursion.

“Autopoietic systems become necessarily subordinated [...] to the maintenance of the autopoiesis of the higher order autopoietic unity [...] the component autopoietic system is necessarily subordinated to the evolution of the manner of realization of the composite unity” (Ibid. 111).

In short, a hierarchical relation between the parts and the whole prevails since the parts are causally dependent on the whole. In other words, Maturana and Varela seem to be saying that autopoiesis is causally dependent on higher levels of recursion since embedded systems are allopoietic systems. This is like saying that autopoiesis depends on the extrinsic structure, that is, the heteronomy cause, since all living systems are always embedded in higher order systems. On the contrary, I claim that *self-production* depends on the intrinsic structure, that is, the autonomy cause, on the causal interdependence between the material and the living levels. However, what does depend on the heteronomy cause is *self-replication*, that is, higher recursions producing lower recursions, which is different from self-production that takes place at the same level of recursion. Thus, the causal interdependence between recursive levels fabricates living systems.

Next, what do these systems biologists have to say about the finality cause? Again, Maturana and Varela, are ambiguous about its scientific value. Like Kant, they see teleology as being like a regulatory principle to understand living beings.

“Teleology and teleonomy are notions employed in discourse, descriptive and explanatory, about living systems, and although it is claimed that they do not necessarily enter as causal elements in their functioning, it is asserted that they are essential definitory features of their organization” (1980:82).

However, a few pages later, “if living systems are physical autopoietic machines, teleonomy becomes only an artifice of their description which does not reveal any feature of their organization” (Ibid. 86).

Concluding,

“Thus, the notions of purpose and function have *no explanatory value* in the phenomenological domain which they pretend to illuminate, because they do not refer to processes indeed operating in the generation of any of its phenomena [...] Living systems, as physical autopoietic machines, are purposeless systems” (Ibid. 86).

Nevertheless,

“This does not preclude their being adequate for the orientation of the listener towards a given domain of thought [...] Therefore any machine [...] can be described by an observer as endowed with a project, a purpose or a function, if properly handled by him in with respect to the encompassing context” (Ibid. 86).

That *apparent* purpose endowed by living systems belongs to “the domain of the observer that defines the context and establishes the nexus” (Ibid: 86). By this Maturana and Varela mean that the finality observed in living phenomena is not independent from the observer. Therefore, “the relations implied in the notion of function are not constitutive of the organization of an autopoietic system, they cannot explain its operation” (Ibid. 86).

Of course, Maturana and Varela are loyal to an idealist ontology derived from an anti-realist epistemology. There is no mind independent world ‘out there’ but only ‘inside’ my mind. “The world is my representation”. We have already discussed this form of knowledge arguing that it favours the subject side of the Subject-Object Dualism. In fact, although they use the term ‘phenomenological’, they mean ‘phenomenal’ from phenomenalism not phenomenology. Unlike phenomenologist, idealists deny the Subject-Object Correlation since we don’t observe objects ‘out there’ but only mind-dependent ideas. However, applying the new epistemology to Maturana and Varela’s perceptions, I would say that their cognitive level picks up perceptions from the “territory” united with ideas put forth by their conscious level. Thus, Maturana and Varela do observe the idea of finality in living systems.

Let’s move to Rosen who offers a straightforward account of the final cause. According to Rosen, the concept of *function* is tied to the concept of organization and “it is relatively easy to objectify” (1991: 116). To do so, he asks us to take a system in which parts behave differently and ask the following question: “*if we were to remove, or change, one of these distinguishable parts, what would be the effect on that behaviour?*” (Ibid.). That experiment would result in a *new system* that would behave differently from the original system. Thus, “any discrepancy between these behaviors defines the *function* of the removed part” (Ibid.). Well, that *component* is the *unit of organization*. “I shall say henceforth that *any system*

is *organized* to the extent that it can be analysed into or built out of constituent components” (Ibid: 117).

Despite Rosen’s assumption of the part-whole relation, he is right in claiming that every embedded system has a purpose in the containing system but, since his theory of organism is devoid of recursive levels, he doesn’t see that the function of the “component” and the function of the system are causally interdependent, otherwise the purpose of system would be a mere sum of the functions of the “constituent components”.

In addition, Rosen introduces an interesting remark that points to the goal-directness of living systems. “A final cause of an effect is defined in terms of *something entailed by the effect* [...] involves the *future acting on the present*” (1991: 133). This contradicts Newton’s picture of the universe and “is clearly inconsistent with the encoding of the other causal categories in the Newton picture [since] a *state* can only entail *subsequent states*... Subsequent states are necessarily later in time than present states” (Ibid: 133).

Exactly, the *goal-directness of a system is implied by the effect*. The causal finality reverses the standard temporal succession between the cause and the effect: the cause is not prior to the effect. We infer the cause after observing the effect. The goal-directness of a system is a product of its activity. Maybe this reminds you of something I said when I dismissed the formal cause on the grounds that the essence of a being is not a cause of change. Indeed, individuality is not something to which systems are necessarily directed, but the history of a system’s activity. This means that all systems in the universe have a history, not a destiny. Teleology doesn’t imply necessity, but possibility.

Indeed, Rosen clearly understood that goal-directness is not deterministic.

“Finality is allied to the notion of possibility, while the other causal categories involve necessity [...] (1) the same function can be manifested in many different ways, and also, conversely, (2) many different functions are incipient in any relational unit [...] there is nothing about a component per se that entails any particular function it may manifest, nor is there anything about a particular organization that entails a specific component” (Ibid: 140).

Lastly, as regards the efficient cause, the same rationale applies to living systems. The stimuli that trigger the autopoietic systems activity are causally interdependent, not the system and the stimuli, and what remains to be seen are their prevalence on different types of living systems.

Causes in cognitive systems

After reviewing the state of the art in systems science regarding the knowledge of how physical and living systems operate, we turn now to cognitive systems to understand their functioning. Again, there are two major contributors in the field of science, namely, Bateson (1970) and Beer (1972, 1979, 1985). We have already mentioned the former in the context of the efficient causes triggering cognition; namely, “differences” pick up from the “territory”. The map is not the territory but the information picked up from the territory. And the map or model is made of causally interdependent differences triggering the system’s activity. Therefore, the models are the extrinsic powers moving the cognitive system and include the following “differences”: perceptions, sensations, feelings and sensibilities. Moreover, maps store information that can be retrieved by the cognitive system to anticipate differences from the territory. This is crucial for the system’s *adaptation*.

With this last remark we have touched upon a definitory feature of cognitive systems which Beer clearly understood. Cognitive systems are “VIABLE:

“able to maintain a separate existence [...] survive in a particular sort of environment. For although its existence is separate, so that it enjoys some kind of autonomy, it cannot survive in a vacuum” (1990: 1).

In *Decision and Control (1966)*, he mentions among the characteristics that define viable: the ability to anticipate, learn, grow and continuously *adapt* to a changing environment. Indeed, *cognitive systems are anticipatory and adaptive systems*. Having said this, according to Beer, viable systems are autopoietic systems. Recently familiar with the theory of autopoiesis, Beer wrote in *Heart of Enterprise (1979)*:

“Viable organizations produce themselves [...] So an autopoietic system makes itself – continuously. What business is it in? It is in the business of preserving its own organization [...] In the concept of autopoiesis we have the final testimonial to viability. The viable system is directed towards its own production” (1994: 405).

In my opinion, autopoietic systems are not the same as cognitive systems since self-production is not synonymous with adaptation. This comes from the conflating Life with Cognition. Moreover, living systems are not anticipatory systems, since anticipation enables adaptation. Anticipation is related to having models of the environment in order to adapt to it, whereas living systems don't have cognition. A cognitive system is in the business of continuously anticipating and adapting to the changing environment.

So what are the necessarily and sufficient conditions of viable system? As we saw earlier, the operational elements, which are collectively called System One, need a Metasystem to remain viable, otherwise the viable system won't be able adapt to its environment. That metasystem is composed of different subsystems with different management functions. In fact, the Metasystem or management is the heteronomy cause affecting the System One activity

Subsystems	Functions
System Two	Damp oscillation
System Three	Exploitation
System Four	Exploration
System Five	Monitor Three-Four Homeostat

Table 28. Functions of Beer's Metasystem

Looking at the table, people familiar with Beer's VSM might think I'm missing a subsystem in the table, that is, the System One. Indeed, according to Beer, the System One is one of the five subsystems of the VSM. However, the System One isn't one of the subsystems of the Metasystem; rather it is an embedded system at a lower level of recursion in relation to its Metasystem. Therefore, the Metasystem and System One belong to different levels of recursion, even though Beer called the System One a subsystem. “Management is on such subsystem, and System One is

another. They, with the remaining three, are *mutually interdependent*" (:31). In order to avoid this confusion, I think is better to see the System One as an embedded system(s) inside the Metasystem.

Furthermore, according to Beer, there is no hierarchy between the System One and the Metasystem, "if all subsystems are vital to viability, then there is no meaning to 'more important' (ibid). Indeed, in a crucial passage, he acknowledges the causal interdependence between the recursive levels affecting the system's activity:

"As soon as we talked about several operational elements, cohering within a larger unit (the next level of recursion), and thereby involved with a metasystemic activity, we found ourselves drawing orthogonal diagrams ... The horizontal axis of the operational element is totally dedicated to its own activity. Whatever impinges on that free activity ... must arise in a different DIMENSION ... This impact is therefore orthogonal. AT ANY POINT in the space that the two-dimensional diagram occupies, two organizational forces are at work. The one depicted on the horizontal axis is the operational force ... The other is the coherence force ... At any point on the diagram, then, these orthogonal forces interact. It is that interaction which DEFINES FREEDOM within the viable system" (:146).

Likewise, regarding the final cause, Beer delighted to write the preface to *Autopoiesis and Cognition* (1980), saying

"I myself have for a long time been convinced that purpose is a mental construct imported by the observer to explain what is really an equilibril phenomenon of polystable systems ... I leave the reader to engender his own excitement in the discovery of a 'purposelessness' than nonetheless makes good sense to a human being" (1980: 67).

Moreover, in the context of viable systems, Beer also introduced the notion of finality.

"A GOOD OBSERVER will **impute** the purpose of the system from its actions and thus from the resultant state.

Hence the key aphorism:

The purpose of the system is what it does” (1990: 99).

Again, like Maturana and Varela, Beer is faithful to the anti-realist ontology embedded in an idealist epistemology, so the same comments apply.

It is time to summarize the state of systems science with the following table and identify a serious gap in our understanding of the universe.

Autonomy Cause	Heteronomy Cause	Finality Cause	Efficient Cause
?	?	?	Experiences
Viable system (Beer 1979)	VSM Model (Beer 1979)	Purpose (Beer 1985)	Differences
Autopoietic systems (Maturana and Varela 1973)	(M,R)-System (Rosen 1991) Autopoietic systems (Maturana and Varela 1973)	Teleonomy (Maturana and Varela 1980) Function (Rosen 1991)	Stimuli
Moving systems (Bohm 1980)	Pilot wave theory (De Broglie 1927)	Implicate order (Bohm 1980)	Forces

Table 29. Summary of the State of Systems Science

Well, now that we have a better grasp of this image of the universe provided by systems science maybe it’s time to compare it with the ones held by the fathers of GST to understand how it differs from them. First, I would argue that GST generally confuses ontological levels and levels of organisation which may explain why systems philosophy and systems science are often confused, since GST seems to be something in between. Moreover, in dealing with levels of organisation is doesn't seem that they understood that they were recursive (self-similar structure), judging from the different properties they give to systems belonging to the same ontological level.

Finally, having identified the world-images that have prevailed since the Greeks, I can see that Bertalanffy assumed the teleological image, Miller the teleological

and natural images, and Boulding the natural and the social images. Instead, what I'm trying to provide, and this could be the main contribution of my PhD, is a different image of the universe in which the complete picture includes ontological levels (intrinsic structure) and levels of recursion (extrinsic structure) without integrating different mutually excluding world-images. At the end of the day, the complete world-image of reality needs both philosophy and science otherwise something will be missing.

However, to complete this world-image there is a mayor gap as we can observe from the state of systems science which will eventually inform systems practice. Therefore, I will try to start finding my way through science itself through a hypothetical scientific theory of conscious systems that aspires to pay tribute to the "Science of Man", using Scheler's words. This will be crucial if we want to inform systems methodologies with scientific theories. This naturally leads me to where I was heading, namely, systems practice. We have travelled a long way up covering the intrinsic and extrinsic structure of the universe, but we don't have enough in explaining how systems operate, especially if the aim of systems practice is to improve conscious systems. However, nowadays, the relation between systems science and systems practice is virtually absent but some systems thinkers, such as Midgley and myself, don't want to accept this situation.

In his presidential address in the ISSS 2014 Conference in Washington D.C, Midgley pointed out some of the strengths and weaknesses of systems science and systems practice. On the one hand, systems science cannot content itself with "understanding and explaining systems behaviour" because it needs to be informed by systemic interventions. However, systems science "does not offer much by way of theory, methodology and methods for intervention". On the other hand, systems practice has a "wealth of methodologies and methods, rich resources to draw upon systemic intervention", but unfortunately it suffers from a handicap, "theory underdevelopment". In short, Midgley was referring the division between 'Systems Sciences' and 'Management Systems'. And, in pointing to some possible solutions, he declared that "successful practice will sort the wheat from the chaff".

Fortunately enough, I had the opportunity to listen to his really inspiring address entitled "Learning Across Boundaries". In fact, I was confronted by the same

challenge ever since I started this PhD. My aim at the time was to help a company named La Fageda to become more enduring after its founder retired. That meant that I needed to develop a theory of longevity and a methodology to improve longevity. That eventually became an upgrade report in which I struggled to provide a theory and a methodology. That was in fact picked up by Midgley when assessing my work: “two halves in need of integration”. Exactly the same challenge he was mentioning in the presidential address. I argued that I knew at least one systems thinker that had managed to integrate theory and methodology, Stafford Beer. The VSM model is not only a theory of viability but provides a methodology to improve viability. At the time I was convinced that both viability and longevity were about systems integration at different “levels” and, hence, that a human system’s with a “soul” needed a different theory and methodology to endure. However, I had nothing more than an intuition to support my case. Later I was encouraged by Midgley to write a paper about systems philosophy to present at the 2014 ISSS Conference and soon I realized that those “levels” were not recursive levels but ontological levels. With time, I also understood that systems science and systems philosophy were also “two halves in need of integration”. In other words, the “theory-methodology” challenge depends on the “philosophy-science” challenge. I’ve also noticed that systems theory is often confused with systems philosophy, that is, systems science with systems philosophy. To clarify my position, maybe the following diagram will help.

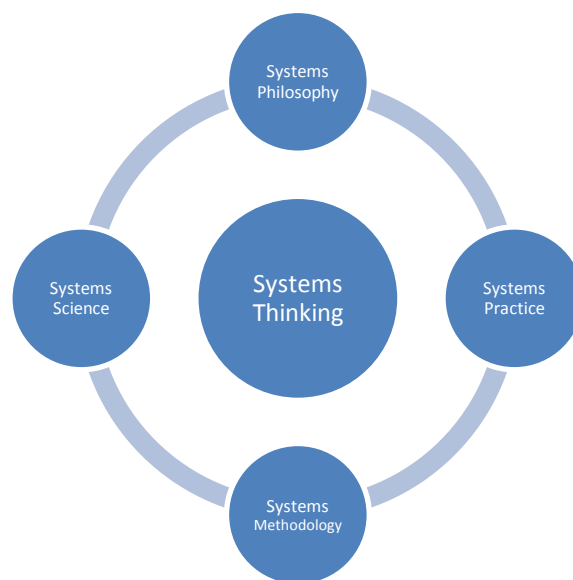


Diagram 18. Subfields in Systems Thinking

This means that systems practice depends on systems methodologies grounded on systems science. Thus, we don't need a pluralist theory to integrate the use of different systems methodologies, but a plurality of scientific theories to ground methodological pluralism. *All systems methodologies should be informed by scientific theories that explain how causally interdependent systems operate.*

So before we move to the next chapter, I believe this chapter has also answered successfully another of our secondary research questions.

- What scientific theories do we need in order to explain how different types of systems operate?

My answer is that we need theories covering the space-time-intrinsic-extrinsic continuum populated by causally interdependent systems. Moreover, since the boundaries of science are dictated by the boundaries of reality, that is, the intrinsic structure of the universe, we will need a plurality of scientific theories dealing with different kind of systems. Fortunately, we have identified several scientific exemplars that have made important contributions to understand how physical, biological and cognitive systems operate. However, we are still missing a scientific theory that explains how conscious systems operate. Therefore, my next step is to propose a theory to confront the "crisis in the knowledge of man", as Scheler described it, claiming that it was the first time in history in which the "knowledge of man" was problematic to himself. Despite the unprecedented advances in all the fields of science, the science of conscious systems is absent from our understanding of the universe. And, I believe, this understanding will not only complete the world image of the universe but provide the much needed foundation of systems practice, my primary research question and title of this PhD.

Part Five

Towards a Theory of Conscious Systems

Chapter 18

Scheler's Theory of Social Units

So where do we start in order to understand how conscious systems operate? Well, as Newton said, "standing on the shoulders of giants". So who is our giant this time on whose shoulders we need to stand in order to build the science of us? On the same shoulders of the man who denounced the crisis in the knowledge of us in 1924, that is, Max Scheler.

"After ten thousand years of "history", we are the first generation in which man has become fully and thoroughly 'problematic' to himself; in which he no longer knows what he essentially is, but at the same time also *knows* that he does not know" (2000: 4).

So what was his theory of social systems? Indeed, I said 'social' instead of 'conscious' systems intentionally. We must start by saying that Scheler was as much interested in metaphysics, philosophical anthropology and ethics as in sociology and culture and his theory of social systems is a mixture of all those "things", as we will see. In addition, though his ethics was mainly a phenomenological inquiry that assumed an implicit ontology of human beings, he didn't develop it until later. And when he did, he didn't believe it could contradict his epistemology, even affirming that "I assume there to be neither a dependence of metaphysics on cognition, nor an inverse dependence" (2008: 19). However, as we will see later on, his ontological assumptions are not always consistent with his phenomenology. So let's start introducing all the elements we need in order to understand Scheler's theory of social systems.

Scheler (1913-1916) had a strong intuition, which I would agree with: why can't social systems be isomorphic with human beings? Surely, he thought, he could derive a theory of social system from his implicit ontology of human beings. His philosophical anthropology needed to inform sociology. Well, although that philosophical anthropology wasn't fully fleshed out at the time, Scheler (1913) did have both a theory of values and a previous study on social feelings which ended up informing this theory of social systems. As we will see, this phenomenological study had a mayor influence on his conception of social

systems as intersubjective worlds. I think it is worthwhile to introduce this theory because it provides a good example of the world image that prevails in the social sciences.

To remind us of Scheler's conception of the human being, human beings are act centres of different kinds; first and foremost, centres of acts of feeling, loving and hating, and only secondarily, centres of acts of thinking and willing. That is, before being a thinking and willing being, a human being is a loving being and thus those other dimensions are dependent on what he names the "moral tenor". We can see the influence of his ethics here but also of his implicit ontology since feelings seem to permeate all the levels of being. The universe is fundamentally the interpenetration of Life and Spirit, Eros and Love, linking feeling and morality. For Scheler, a confirmation of that permeation of feelings across ontological levels came from his phenomenological study of moral values. In particular, he found an a priori hierarchy of values when analysing the structure of experience of values. Starting from the bottom to the top of his philosophical anthropology (that is, from the lived body to the person through the ego), Scheler found the following values:

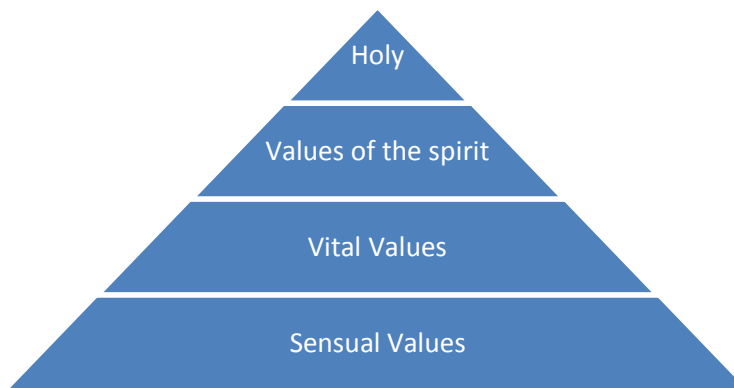


Diagram 9. Scheler's Hierarchy of Values

That is, he believed that his phenomenological study had confirmed the emotional stratification of moral life. Moreover, prior to his ethics, he had devoted a phenomenological study to the social feelings in which he also found that there were different types of co-feeling or co-experiences.

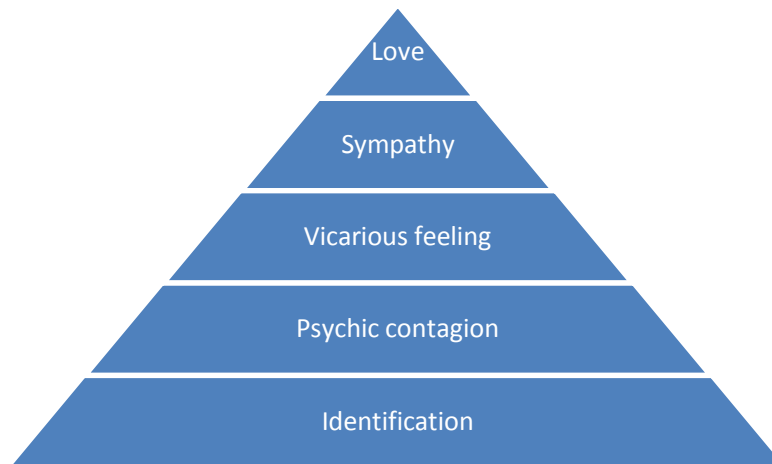


Diagram 19. Scheler's Types of Co-Experiences

The final ingredient to Scheler's theory of social systems was phenomenology itself. The person is not an object of experience such as the ego; "the person experiences himself through the execution of acts" (1973: 387). Likewise, in the case of other persons, "the person is experienced in terms of post-execution, co-execution, or pre-execution of acts" (Ibid: 387). Therefore, the person and other persons are not given in his consciousness as objects of experience, "the only and exclusive kind of givenness of the person is his execution of acts (Ibid: 387). More radically, "it belongs to the essence of the person to exist and to live solely in the execution of intentional acts" (Ibid: 390)

In other words, the person seems to be an experienced reality and without the execution of intentional acts he would cease to exist. Therefore, the person seems to exist only while executing intentional acts, that is, while it performs acts of consciousness. That means while he is "conscious-of" something: feelings of something (value), willing of something (goal), judging of something (state of affairs) or thinking of something (idea).

Collective Person

Now that we have all the elements to understand Scheler's theory of social systems, we can start with his collective person. In contrasting his sociology with Wundt's (1862) creative synthesis and social atomism, he wrote

“The collective person is not the result of any kind of “synthesis” which it or even an individual person must undertake [...] Neither a “kind of “sum” or a kind of artificial or real collection of individual persons” (Ibid: 522).

He asserted instead, that the collective person “is an experienced reality” (Ibid: 522). By this he meant that we can experience the collective person in the execution of acts, just like we can experience the individual person in the execution of acts. But you will surely say, how can an individual experience someone else’s acts? Well, according to Scheler, the types of acts that a collective person executes are social acts in which individuals participate through a co-experience. Individual persons co-experience the collective person’s social acts. Thus, he can say that the collective person is an experienced reality. Moreover, the collective person, like the individual person, lives only in the execution of social acts that we can co-experience. However, I would argue that we don’t really experience conscious acts; by definition we can only experience what results from a conscious act or a cognitive function - that is, a conscious experience or a cognitive experience. But we know that Scheler wanted to avoid making the person an object of experience, because it would mean reducing the person to the ego. Therefore, he chose not to consider a person anything that appeared in consciousness except the unity executing conscious acts; that is, the person was a centre of intentional acts. Likewise, the collective person was also a centre of intentional acts. How do individual acts differ from social acts? Well, through individual acts the individual person is “consciousness of” the self, self-esteem, self-love, self-responsibility and individual values, and through social acts the collective person is “consciousness of” the other and collective values. So the individual person can co-experience the collective person in the co-execution of social acts.

To complicate things further, Scheler (1913-1916) went on to say that co-experience is, in fact, prior to self-experience. Individual persons are born into a co-experienced world, the social world, and later on self-experience their own individual world. Co-experience is the original experience; only later in life, when we become mature individual persons, does self-experience come into existence, literally. Indeed, since the person only lives in the execution of intentional acts, therefore, originally the individual person is a social being and only later he or she

becomes an independently existing being. So the social world of the collective person is in fact the same co-experienced world of the potential individual person. When the individual person becomes a mature person then they can have their own individual world, yet they still continue to experience that social world. We could say that before we can have Self we need to be Other. We are born in a collective person with a social “consciousness of” its social world until our own individual “consciousness of” awakens its individual world. This is the Self-Other Dualism making the social world and, hence a social system, an intersubjective reality. Moreover, it is an intersubjective reality that depends on being co-experienced through social acts, otherwise it would cease to exist. However, Scheler would argue, that the social world can never cease to exist because it is always co-experienced by someone.

The collective person,

“It is something going beyond the member-person in terms of duration, content and range of effectiveness [...] the collective person’s existence [...] is not connected with the existence of the same individual persons [...] The collective person with its world is not fully experienced in any of its member-persons” (Ibid: 523).

Therefore, it could seem that the collective person has a unified world which individual persons cannot fully experience, since the “collective person does possess a “consciousness-of” that is different and independent of the consciousness-of the individual persons” (Ibid: 523). Indeed, “the collective person has a collective world” (Ibid: 522) But then why does Scheler, in analogy to the definition of the person, “designate as collective person the various centers of experiencing” (Ibid: 520)? Maybe those centres of experience are the same centres of experience found in a person? On the one hand, the lived body and the ego which belong to the life-centre with its inwardness and, on the other hand, the act centre or the person with its outer and inner world. Indeed, Scheler is trying here to combine his philosophical anthropology with phenomenology. But it is one thing to say that a human being can experience the universe due to his or her ontological structure, and quite another to claim that the collective person is an experienced reality. I think this is where the theory of the collective person goes wrong. Is the collective person an experienced reality? To say that a

collective person is its “various centres of experiencing” is very different from saying that the collective person is an experienced reality. A centre of experience is not an experienced centre! Ontology cannot be reduced to epistemology. A conscious system is an experiencing centre, indeed, but cannot be reduced to an intersubjective reality. This is why I think that phenomenology is not compatible with Scheler’s ontology.

On the contrary, I claim that both conscious and cognitive systems are ontological realities, but of a different kind: one picks up “differences” from the territory and the other has outer and inner “experiences”. Moreover, conscious systems cannot be reduced to an experienced reality by someone else, the Other. Even if nobody else experienced a conscious system it would still be an ontological reality. We cannot continue reducing reality to experience, and ontology to epistemology, which has been the case with Western epistemologies since Descartes (1637).

The Social Units

Now we are more than ready to understand the parallel social units that Scheler draws from the various centres of experience in an individual person and since some of those centres of experience are not proper persons, like the ego and the life-centre, “not *all* kinds of social unity are unities that may be called collective *persons*” (Ibid: 525)

Based on his study of social feelings (1913), he talks about the *mass*, constituted by “contagion and involuntary imitation”. According to Scheler, the mass is a reality devoid of understanding, we could even say without a world or co-experience since it seems to correspond to the material world. However, Scheler needed a correlate for the next social unit. This correlate is the environment which appears as a physical phenomenon in the life-centre. Physical things don’t have being, because they don’t have inwardness, but they are the inwardness for another level that does have being, the life-centre. However, it “has a reality of its own and has its own laws of effectiveness” (1973: 526). Finally, the mass has a mechanical unity. So at this level Scheler accepts the mechanical view of the universe and the deterministic law of nature.

Later, and starting the pyramid of being, comes the *life-community*, which is constituted by genuine co-feelings appearing in the first centre of experience, the life-centre. However, though it has inwardness, that inwardness is the same for all the members of the life-community. In fact, we cannot distinguish the experience of the life-community from the members of that community; they have the same experience. The Self and the Other are one and the same, so strictly speaking, there is no Self, just Other. All the members of the life-community have the same understanding because they all co-experience the same world, so there is only one world for all its members, the social world. He also introduced at this level the concept of ‘solidarity’ maybe influenced by Durkheim’s (1893). In the case of the life-community, solidary is understood as representable solidarity. Members cannot represent themselves; only life-community is represented and represents all other members, so they don’t really have a voice, but the community’s voice which they all represent. Scheler calls it a “one for all”, which is different from an “all for one” solidarity, which will come later. Nevertheless, morality does enter the picture in the form of vital values. Indeed, the *values of life and the noble* guide the community. Moreover, like the life-centre’s directness, the life-community also strives towards goals. Well, in fact, all its members strive for the same goal, involuntarily and subconsciously. “There is one and the same goal-determined *striving* and *counterstriving* [...] But there is *no* will which can be called purposeful” (Ibid: 528). In the life-community “the human being is only an *organ* and *member* here, it is not yet a mature person” (1987: 138). We will have to wait until the next social unit for that to happen. The life-community, like the mass, also has a unity, an organic unity.

The next social unity, the *society*, is “an artificial unity of individuals having *no* original “living-with-one-another” (1973: 528). I suppose that since the unity is granted by the lived-body which the ego belongs to, the ego and the society have a unity even though not original. Despite its artificiality, it is only in society or through the collapse of the life-community that individuals can grow out of their immaturity and “dare to know”, as Kant (1784) would say. Relationships between individuals in society are not based on mutual dependence, but on mutual interests. The human being in a society is now a self-responsible individual who pursues its own interests. Now it gets together with other self-interested individuals, making deals and signing contracts with others to achieve its

purposeful interests. The distinction between the Self and the Other finally emerges: now individuals in the society can have different experiences, and the individual now has a world of its own, maybe at the expense of the social world Scheler may have thought. There is no true solidarity, however, although individuals are self-responsible now that they have a self-experience; it is a non-representable solidarity characteristic of self-interested individuals, “all for one”. Moreover, the “social unit of society is not a special reality outside or above individuals” (Ibid: 529). We may think this is due to the ontological dependence on the live centre; only the live centre as a whole has being, and the ego is only a part of it. Yet, what the society does have is a common will; or better, the interest of the majority prevails, “imposing the will of the majority on the minority” (Ibid: 529). Therefore, there is not one will, but a common will. We may also wonder whether it has a world of its own, whether there is still a social world or only a collection of individual worlds; maybe the tension between the Self and the Other is leaning towards the Self side, downplaying the Other. Maybe the governing values are not helping either, since the values of life and the noble are now receding in favour of the *values of the useful and the agreeable*; that is, utility and pleasure are now paramount in society.

Finally, salvation comes with the *Collective Person*. Here humans can stop being mature individuals to become truly human beings. In the collective person, individual persons are not only self-responsible for each other but also co-responsible for everyone else, and the same goes for the collective person. The collective person has recuperated its voice; it can now be self-responsible to itself and co-responsible for others. More, in the collective person, “[the individual is] an *independent and self-responsible centre of actions and a member co-responsible* for the deeds and accomplishments of the collective personality that he belongs to” (1987: 139). Everyone has a genuine voice, but everyone is responsible for himself or herself and for others, including the collective person. The unity in the collective person is a “unity of a *spiritual* act-centre” (1973: 543), just like the unity of the individual person. In addition, this unity is more tolerant than other social units since “the collective person is directed in some way toward all types of values, and it must possess a peculiar *consciousness* of them and have *consideration* for them” (Ibid: 545)

Indeed,

“a collective *person* must be directed toward goods of *all* modal types of values, not only to toward goods of only *one* type among them, and it must be directed toward these modalities in accordance with the order of its individuality” (Ibid: 543).

Hence, just like the person has “*domination over the lived body*” (Ibid: 479)

“the collective *person* must possess this authority of being and superiority of will with respect to all other particular social units directed toward only one value-modality, i.e., both the society and the life-community. And this we call its *sovereignty*” (Ibid: 543).

In fact, by analogy to the individual person, “the collective person [is] the various *centres of experiencing*” (Ibid: 520). And thus, “it must possess [...] factual social units of *all* essential forms” (Ibid: 545), just like the individual person possesses various centres of experiencing, namely, the ego and the lived body.

The inhibiting Mind or Spirit is entering the disinhibited Nature or Life, the impulsive drives of the life-centre left loose by the ego can now be directed accordingly. Now a balance between the individual and the social world seems possible, the Self and the Other are genuinely original beings, both worlds are voiced and get heard. However, we are still left with the same question: are they two different worlds, a social and an individual world, or a social world co-experienced by individual persons? If the social world is the same world that individual persons co-experience, who does this world belong to? To the collective person that owns its social world, of course. The collective person is no longer an experiencing reality like the life-centre that experiences physical and psychical phenomena, but an intersubjective reality co-experienced by the individual persons. An all-encompassing consciousness has swallowed the individual persons that now take that social world to be their own individual world.

Let us summarise Scheler’s story about the social units with another table.

Social Units	Types of Unity	Experienced world	Being	Values
Mass	Mechanical	No world, no experience or understanding	No	No
Life-Community	Organic	Co-experienced world, Self=Other, same experience and understanding	Yes, life-centre (Life)	Vital
Society	Artificial	Weak social world and strong individual world, Self and Other, different experience and understanding	Not original, derived from the life-centre	Utility and Pleasure
Collective Person	Spiritual	Collective world, not fully experienced by the individual persons, extra-linguistic intersubjective reality	Yes, act-centre or person (Spirit)	Psychic and Holiness

Table 30. Main Features of Scheler's Social Units

So what can we say about this theory of social systems? Well, we already saw that there are some inconsistencies between his philosophical anthropology and phenomenology: an experiencing reality is not an experienced reality, and we cannot reduce ontology to epistemology. Moreover, based on his philosophical anthropology, Scheler expands not only the notion of intentionality to include acts of feeling and willing, since the person is united with the lived body, but also Husserl's (1900-1901) "consciousness-of something". Indeed, going beyond the Object as a correlate of the Subject (that is, the Object-Subject Correlate), Scheler introduces a more encompassing "consciousness-of" whose correlate is no longer the object but the inner world of the person, and in so doing, he avoids considering the person as an object of experience. The person is not another possible object given to a subject, but the ontological being executing intentional

acts; that is, an act-centre. Therefore, Husserl's transcendental subject gave way to a spiritual being performing intentional acts. Moreover, this spiritual being is "consciousness-of" an inner world and an outer world that "appears" in consciousness, where physical phenomena from the environment of the lived-body and the psychical phenomena from the ego are also part of the individual world of the person. Now there are three types of correlate of the human soul: the physical environment of the lived-body, the outer world of the ego and the inner world of the person. In fact, now "the world is the correlate of the person" (Ibid: 343).

However, that genuinely person world of the spiritual being is nevertheless not individual, as it appeared to be at first sight, but a social world that is given to the spiritual's being consciousness. Therefore, what is given to the person in consciousness is not an individual world per se, but an all-comprehensive social world. The world of the person is a social world. A social world co-experienced by *all* the members of the collective person. They all experience the same intersubjective world, the same world-view, we might say. A unique worldview into the universe is no longer possible. The spiritual person can see the universe with his or her own eyes, but needs the other's eyes to see his or her own individual world.

Moreover, the collective person cannot be said to have an individual world either: the collective world is co-experienced by the individual member-persons, even though nobody can experience the collective world fully. The collective world of the collective person has no privacy since every intimacy is publicly exhibited to the other's eyes. Now the individual persons can spend the day gossiping about the collective person. Indeed, "the collective person has a collective world" (Ibid: 522). But the collective person might complain saying: why can't I have my own individual world like everyone else? And he or she might be right. But, in responding to the collective person, the phenomenologist will tell her that the Self-Object Dualism doesn't allow you to have your own world. "But I want my own individual world", she will continue insisting, so get rid of that dualism and give me back my world, it's mine! But you have your own intersubjective world, argues the phenomenologist. No, that is someone else's world and not mine, she will say, I want my own individual world! It's not possible because you are the Other and I'm the Self, concludes the phenomenologist. Not giving up, the

collective person tells him: then make my collective world an individual world like yours, since I don't want a social world anymore!

The phenomenologist's "consciousness-of" is now at risk, no matter how far we want to expand the "consciousness-of-something"- even encompassing the whole cosmos, as Berkeley (1710) did with God, we're still left with a collective person without an individual world. Why can't the collective person have its own world? Because, according to Scheler, a collective person is an intersubjective world. What about the other particular social unities such as the mass and the society; do they have a world? Well, since the former doesn't have inwardness and the latter is reduced to the selves, neither has a world, even less an intersubjective world like the collective person. And in the case of the live-community it is pure otherness or pure intersubjectivity.

In short, Scheler's theory of social systems is not a theory of systems that experience the universe but, in the best cases scenario, an intersubjective universe. If we want a different image of the world that does justice to the nature of conscious systems, we need to question the Self-Other dualism. Conscious systems are not collective or social systems that live in an intersubjective world of linguistic meanings, even though for Scheler that intersubjective world was extra-linguistic. Conscious systems are not social units! Having said this, Scheler did have a sound intuition. The individual person is a microcosm of the collective person. Levels of organization in conscious systems are of the same structure since they are recursive structures. However, he was mixing ontological levels with levels of organization as the following table shows.

Ontological levels	Levels of organization
Individual Person	Collective person
Cognition ("ego")	Society
Life	Life-community
Matter	Mass

Table 31. Scheler's Ontological and Organizational Levels

Moreover, since the person dominates the body, the collective person is sovereign over the other social units, so we can clearly see there is a hierarchy of systems. However, as with any other system in the universe, the ontological levels

and levels of organization of conscious systems are causally interdependent. Well, let's move on so see on the following table the factual social units that Scheler gives as examples of this theory of social systems.

Life-Community	Society	Collective Person
People	Trade unions	Culture
Home-community	Associations	Church
Marriage	Schools	State
Family	Societies	Nation

Table 32. Scheler's Factual Social Units

Don't they all share the same intrinsic structure? Surely, the examples of society and the life-community, which according to Scheler lack a world, have the same ontological constitution as the collective person: *Consciousness, Cognition, Life and Matter*. Indeed, the society and the life-community are not different ontological levels, judging from the examples. After all, Scheler's theory of social systems doesn't really offer a scientific theory to understand how conscious systems operate since levels of organization and ontological levels are not isomorphic. However, his original intuition that the collective person and the individual person had the same intrinsic structure was sound. To use the maxim laid out in the *Corpus Hermeticum* (1st and 3rd centuries AD): "That which is Below corresponds to that which is Above, and that which is Above corresponds to that which is Below" (Newton circa 1680). The human being is a microcosm of the macrocosm, indeed, but that doesn't mean that the intrinsic and the extrinsic structures of the universe are isomorphic.

There is a Something outside the Text: The One World

An acute observer may have noticed that, in the previous sentence above the heading, my world-hypothesis has introduced a new dualism, this time between the intrinsic and the extrinsic. This world image results from two mutually complementary universes: the philosophical image and a scientific image of the

universe. Thus, we can call this world image the *One World*, since I suggest that it is the first the time in history of Western thought that we haven't duplicated the universe trying to accommodate mutually excluding worlds: for Plato, the intelligible world of being versus the sensible world of appearances; for Aristotle, the prime unmoved mover versus the changing world; for Descartes, the indivisible world of the subject (*res cogitans*) versus the divisible world of the object (*res extensa*) and, finally, for Husserl, the subjective world of the self versus the intersubjective world of the other. The One World is not a world of timeless and changeless beings, such as Plato's Forms or Aristotle's God, and neither is it a mechanical world of aggregate objects nor an intersubjective world of linguistic meanings, but a *universe of causally interdependent systems*.

Western philosophy	Dualism	World-images	Beings
Ancient	Matter-Spirit (Plato)	Intelligible world	Transcendent Forms
Medieval	Matter-Form (Aristotle)	Teleological world	Composite Substances
Modern	Subject-Object (Descartes)	Natural world	Aggregate Objects
Contemporary	Self-Other (Husserl)	Social world	Linguistic Meanings

Table 11. World-Images in the History of Western Thought

After this quick excursion through the world images that have dominated Western thought we still need to understand how conscious system operate, but at least we know that we live in a world of causally interdependent systems, not in a intersubjective universe constructed by language. But since this last view of the human being still prevails in much contemporary philosophy, let's listen to what its main advocates say about it.

In responding to 'The Crisis of Man's Knowledge of Himself' denounced by Scheler, Cassier (1944) give his own answer:

“The great thinkers who have defined man as an *animal rationale* were not empiricists, nor did they ever intend to give an empirical account of human nature. By this definition they were expressing rather a fundamental moral imperative. Reason is a very inadequate term with which to comprehend the forms of man’s cultural life in all their richness and variety. But all these forms are symbolic forms. Hence, instead of defining man as an *animal rationale*, we should define him as *animal symbolicum* [...] The symbolic thought or symbolic behaviour are among the most characteristic features of human life” (1944: 44-45).

Do we still believe that conscious systems are “symbolical animals”, that the *use of symbols* or the *symbolic image*, echoing Boulding (1956), is what defines us? Is “the question of language”, as Taylor believes, “strategic for the question of human nature”? “Man is above all the language animal (Taylor 1985: 216)”

“Human beings are self-interpreting animals. This is a widely echoing theme of contemporary philosophy. It is central to a thesis about the sciences of man, and what differentiates them from the sciences of nature, which passes through Dilthey and is very strong in the late twentieth century. It is one of the basic ideas of Heidegger’s philosophy, early and later. Partly through his influence, it has been made the starting point for a new skein of connected conceptions of man, self-understanding and history, of which the most prominent protagonist has been Gadamer. At the same time, this conception of man as self-interpreting has been incorporated into the work of Habermas, the most important successor of the post-Marxist line of thought known somewhat strangely as critical theory” (Ibid: 45).

Is the symbolic world opened up by the emergence of language what defines us? Isn’t this view, in fact, disconnecting the conscious level from the cognitive level in us? That is, the conscious level from the rest of our intrinsic constitution? Animals also use signs, Cassirer (1944) acknowledges, but the symbolic world of meaning is a privilege of human beings. Animals don’t have a world because they are pre-linguistic creatures, but we humans inhabit an ultra-linguistic universe. The world is no longer an experienced reality, as Scheler would have it, but a linguistic

reality. “Language is the house of being”, as Heidegger (1949) said, and all world-views are “language-views”, as Gadamer (1960) believed. No wonder the social sciences are different from the natural sciences, the rest of the universe can be *explained*, but ‘we’ need to be *understood* within the boundaries of a socially constructed universe. We cannot come out of language to see the reality, because language is reality. But is there something outside the text, to paraphrase Derrida (1967)? Indeed, the One World.

To close this chapter we can say that Scheler’s theory of social systems was an original attempt to derive a collective system from individual systems, believing that they share the same ontological structure, but he took the microcosm metaphor too far and assumed that the intrinsic and extrinsic structure were isomorphic. Moreover, as we saw, unlike the individual person, the social units didn’t experience the universe, only an intersubjective reality. Therefore, this theory of social systems doesn’t explain how conscious systems operate. Are there any other giants besides Scheler who have attempted a different route to explain how these types of system operate? Indeed, Nicolai Hartmann has examined this, as we will see in the next chapter.

Chapter 19

Hartmann's Theory of Spiritual Formations

I will start by saying that Hartmann (1940) is the first philosopher I know of who didn't take for granted the structure of the universe but, instead, discovered the most sophisticated system of ontological strata I've ever seen without falling into what he calls a categorial monism; that is, "postulating the unity of a system of categories beforehand without discovering the categories"(1940: 167). As examples of unilateral images of the world, Hartmann mentions materialism, biologism, psychologism, idealism, personalism, panteism, monadology and teleologism. "We have to find the unity of being taking its categorial multiplicity. It is impossible to know beforehand how that multiplicity is constituted [...] We need to travel the long journey of categorial analysis" (Ibid: 187).

For Hartmann, as we saw in Chapter 10 (Section 5), the structure of the universe is divided into three boundaries resulting in four strata:

- The Physical-Psychic boundary separating the spatial and material *Nature* from the non-spatial and immaterial *Spirit*, that is, the material and the organic strata from the psychic and the spiritual strata
- The Physical-Alive boundary between the inanimate and the alive strata.
- The Psychic-Spiritual boundary between the psychic strata and the spiritual strata.

The last boundary between the psychic and the spiritual strata is the most problematic in his philosophical system because it is not clear what rests above that boundary. For instance, consciousness belongs to the psychic strata, but Hartmann claims that "they are the same acts of consciousness that belong simultaneously to the psychic and the spiritual being" (Ibid: 219). The category of consciousness belongs to both the psychic stratum and the spiritual stratum. However, Hartmann claims that the Spirit is something different from consciousness, since higher animals have a spiritless consciousness, and most of the forms of the spiritual stratum don't have consciousness. In short, there seems to be an overlap between the psychic and the spiritual strata as regards consciousness.

The Fundamental Forms of the Spirit

In order to start understanding the nature of the spiritual stratum, we need to introduce Hartmann's three fundamental forms of the spiritual being with the following table showing the different attributes of personal, the objective and the objectified spirit.

Personal Spirit	Objective Spirit	Objectified Spirit
Individual	Common	Fixed
Alive	Alive	Not alive
Consciousness	Supra-individual	Supra-individual
Real	Real	Ideal

Table 33. Attributes of Hartmann's Spiritual Formations

This table of attributes shows that the personal spirit is closer to a psychic being, which according to Hartmann has a spiritless consciousness, than to the other forms of spiritual being, though the former is a person and the latter a subject, which reminds us of Scheler's distinction between the person and the ego. But what does Hartmann mean by consciousness and how does it differ from spirit? Well, I would say that, in the context of the personal spirit, consciousness is self-consciousness, which doesn't apply to a psychic being. However, self-consciousness doesn't define the spiritual being because it is something secondary that comes only from experiencing what he or she is not, that is, the world.

“[The spirit] is fundamentally directed to what he encounters; he is much more conscious of the world than self-conscious [...] The spirit is, above all, primary directed from itself to something else, to everything that falls in his scope [...] He is not what he conceives of himself, but what he takes from the world” (Hartmann 2007: 104).

So the spirit isn't closed in on itself, but open to the world it encounters. That is why he affirms that since “consciousness is a sphere enclosed in itself [...] Consciousness separates men. Spirit unites them” (Ibid: 105). Moreover, this doesn't apply to the personal spirit, because “the person goes beyond itself, expanding into the vital sphere in which it coexists with other persons” (Ibid: 205).

“The person transcends the interiority of consciousness [by] entering into a relationship with the world” (Ibid: 206).

This concept of consciousness is, in fact, one of the poles of the dualism dominating social sciences, the Self, which has its precursor in Husserl’s (1900-1901) solipsistic ego. However, the Self is in stark contrast with my concept of Consciousness. Indeed, consciousness cannot be reduced to the Self (as in phenomenology) but neither to the Subject (as in idealism) because that would mean reducing ontology to epistemology. We have plenty of examples of this kind in the history of modern philosophy: Descartes’s subject (1637), Leibniz’s apperception (1714), Kant’s pure apperception (1781/1787), Fichte’s I (1794), and Hegel’s (1807) absolute subject. In contrast, Consciousness is an ontological level defined by the Inner-Outer Duality (see Chapter 10, Section 3). Furthermore, it doesn’t make sense to assume that the Mind is separate to the Body because Consciousness and Cognition are mutually interdependent.

We can close this parenthesis and continue with Hartmann’s problematic boundary between the Psychic and the Spiritual strata of reality which, as we have seen, is not drawn by consciousness because it doesn’t define Spirit per se. Maybe we can grasp better this boundary by looking at the different formations of the spirit he identifies in the spiritual stratum. Spiritual formations can be divided into totalities or complexes, depending whether the whole depends on the part or the elements on the complex. For instance, the individual spirit belongs both to the spirit strata as a lower level of organization of the community, and to the psychic stratum as a higher level of organization. Thus, the individual spirit as a level of organization is duplicated which means that there is no discontinuity between these strata. On the contrary, the discontinuity happens at the next level of organization above the community. Indeed, the objective spirit emerges as a new categorical moment that doesn’t have the individual or the community as elements. The objective spirit becomes a *new* autonomous complex that predetermines the community and the individual spirit. In other words, the boundary between the psychic strata and the spiritual strata happens when the objective spirit emerges.

Ontologically speaking, we find more continuity between the personal spirit and higher animals which at least share consciousness than between the personal

spirit and the objective spirit. Indeed, unlike the relationship between the strata, the objective spirit doesn't rest on the personal spirit but is carried by the community. Objective spirits "are carried by the community of individuals, but are not identical to them, because they have a structure and a way of being that is historically distinct" (2007: 73).

History and not consciousness is thus the defining attribute of the objective spirit:

"Only the objective spirit is the carrier of history in the strict and primary sense; only he is one who properly "has a history". Only he is supraindividual and common spirit, but at the same time real and living spirit. Its transformations and vicissitudes constitute the historical change and the historical destiny" (Ibid: 127).

To put more emphasis on the discontinuity,

"There is no common consciousness above the consciousness of the individuals; and since will, activity, freedom, etc, are linked to a consciousness, these don't return into the collective spirit either" (Ibid: 531).

Formations of the spiritual being

Anyway, Hartmann's formations of the spiritual being are the individual spirit (person), the community (society) and the objective spirit (history). However, as we have seen, the individual spirit is not embedded in a recursive structure since the levels of organization are not self-similar. Having said this, judging from the following quotation, Hartman seems to imply that complexes have recursive levels of organization:

"The elements should not be imagined by analogy with material particles. And they don't need to be simple either. They can be in turn entire complexes [...] as well as a whole species of complexes can be in turn an element of an subsequent complex" (Ibid: 362).

However, the elements are always subordinated to the complex

“The superior forms of the complex show a clear subordination of the elements to the complex [...] No only the organism is of this kind; also the national and political community relatively determines the individuals, and likewise in the case of the supraindividual historical forms of the life of the spirit, they are also predetermining relations and persist with some unity” (Ibid.).

This means that the individual spirit is subordinated to the community and the embedded objective spirits to the containing objective spirit, so the elements are not autonomous but depend on the complex. Thus, the autonomy in dependence relationship doesn't apply in the case of complexes. The elements depend on the complex and not the other way around. In addition, if both the objective and the community are complexes of a different kind, it is difficult to imagine how the former can be *carried by* the latter if it is not an element of it. Logically, lower levels are carried inside higher levels, but Hartmann believes that objective spirit *rests on* the community. If the community is embedded in the objective spirit, as Hartmann implies, then the former is carried by the latter and not the other way around.

Maybe the relationship between the levels of organization is of a different kind. Maybe the forms of the spiritual being are not embedded in each other, yet it is difficult to imagine how the individual spirit is not embedded in the community. Indeed, according to Hartmann, inside the spiritual strata there is no stratification between the forms of the spirit.

“The three forms of the spiritual being don't constitute between them a continuation of the stratification [of the universe] but together, as an invisible and concrete unity, belong to the one and same ontological strata of being, and even constitute in their entanglement [...] But the three show together the same “resting on” the same stratified structure, don't exist as floating configurations; and if the ontological foundation that rests at the base is removed, they collapse” (Ibid: 130).

If this is so, it is still more difficult to imagine how the objective spirit is carried by the community since all forms of the spirit belong to the same level of organization. But surely, the fundamental category of the *element and complex* which crosses all the strata of the universe implies levels of organization within each stratum. Moreover, the introduction of levels of organization within ontological levels is compatible with a “one, unified, undivided and indivisible spiritual being” (ibid: 127). Indeed, the causal interdependence that Hartmann found between ontological levels also applies to levels of organization within the spiritual stratum, as Hartmann even acknowledges.

“These forms have, despite their diversity, the same position in the universe and this means that they have the same relation with psychic, the organic and the material being [...] In the three forms of the spirit there is the same being carried and the same autonomy in dependence [...]” (Ibid: 130).

He explicitly says that three forms of the spirit are “totally coordinated [in] a specific relation of reciprocal complementarity and of mutual reference (Ibid: 128). That reciprocal relation he mentions between the forms of the spirit is, in fact, the causal interdependence between the levels of organization of a conscious system. However, for Hartmann, the spiritual being is a *historical being*. It is time to introduce the essential form defining the spiritual being, the objective spirit.

The Objective Spirit

How come history and not consciousness defines the totality of the spiritual being?

According to Hartmann,

“History”, strictly speaking, are not the partial processes that develop in the particular spheres of the spirit, but only their intersection, their entanglement, their stratification and their being reciprocally conditioned in *one* time and *one* total course; in short, its concrete unity” (Ibid: 93).

He is referring to the same concrete unity that integrates the fundamental forms of the spirit in a reciprocal relation. However, even though they are entangled in the same unity, only the objective spirit has a history. "The historical spirit is not the individual personal spirit" (Ibid: 93). The individual spirit is infra-historical and the objectified spirit supra-historical. Moreover, the discontinuity between the personal spirit and the objective spirit seems to question that same concrete unity. "The spirit unites, consciousness separates" (Ibid: 124). However, the personal spirit is a fundamental form of the spirit but doesn't define the spiritual being because it is by definition historical, according to Hartmann. There is clearly a contradiction here. If the spirit unites and consciousness separates, consciousness is not part of the spiritual being but belongs to the psychic being instead. However, this would leave the personal spirit out of the spiritual stratum. Furthermore, the objectified spirit wouldn't belong to any of the strata of the universe since it is not historical, conscious or alive, unless we consider it material. In other words, the defining feature of spiritual beings becomes problematic.

Another way to try to exit this paradox is to see why Hartmann places 'Man' in both the psychic and the spiritual strata. First, "man is himself a stratified being, being also organism and therefore also a corporeal-material formation" (Hartmann 1959: 540). Besides being a psychophysical unity, man as a subject belongs to the psychic stratum and man as a person to the spiritual stratum.

How does Hartmann (1933) justify this ambivalence about man?

"Man is a subject and has in front of him another subjectivity. But insofar as it is related to a world in common, its relation to his peers is not exhausted in that the world is for him, since those who live with him are not exhausted "for him" in this, in being his objects. Precisely here another link appears between him and the world, a link that appeared hidden in that relation: his own being *for the world*" (2007: 190 my emphasis).

Basically, he is crossing two dualisms: Subject-Object with Self-Other. On the one hand, the world (object) is for Man (subject) and, on the other hand, Man is another subjectivity (self) for the common world (other). In other words, man belongs to two worlds, the natural world and the social world. Indeed, we have found the essence of the objective spirit, the social world. However, the social

world is not the community, since the person is not an element of the objective spirit. Besides, the community is not a 'big' person with a 'big' consciousness either, since "a society of men is not a man" (Ibid: 44). Moreover, the community is not an element of the objective spirit either. Indeed, an objective spirit is not a society of communities either.

"The common spirit is not a community, doesn't have the form of the collective, nor is it understood as a sum or a totality of individuals. [It is] a configuration and a totality different from the community of individuals" (Ibid.)

What is the objective spirit then and what elements does it carry? *The objective spirit is a historical system that carries spiritual contents.* And what are spiritual contents?

"Everything that an individual spiritual being gives or represents as its opinions, representations, judgements, prejudices, concepts and intuitions. From the point of view of consciousness, we can call these configurations internal or intentional objects, since they are internal correlates of the acts of thought [...] Yet, all spiritual "content" in this sense, has the tendency to materialize in objectively formed configurations. These configurations can be manifested, concrete, plastic, or also abstract, universal and symbolical. But they always have a certain objective existence of their own in the sphere of the spirit" (Hartmann 2007: 248).

But surely, these 'contents' don't have an independent existence from the acts of thought and the individual spirit from which they came from?

"The separation of the contents of the person is something fundamental to the spiritual life. It differs radically from the mere psychic life. Psychologically, the act and the content are an inseparable whole. This is the reason why the true spiritual configuration cannot be grasped psychologically" (Ibid: 249).

More importantly, according to Hartmann, once the content is communicated by the individual it can endure becoming a *common property* of many individuals. That is, spiritual contents are *intersubjective experiences*.

“The discovery of the common intersubjective character nearly coincides with the discovery of the spiritual being [...] This happens independently of the capacity to transmit and communicate” (Ibid: 253-254).

What other features of the objective spirit does he mention? First, the objective spirit is always prior to the personal spirit. “The individual always finds a determining common spirit already configured and existing, and “grows” in it. A spirit of the age is always present in every age. No individual imagines or invents it on its own” (Ibid: 262). Second, the common spirit is not a sum of personal spirits like the community. Third, “every objective spirit is in itself a diverse multiplicity [...] According to its essence, it is not an aggregate of individuals, but [...] an aggregate of spiritual forms, contents” (Ibid: 263).

In fact, language heads Hartmann’s list of examples.

“We chose as an example the spiritual sphere of language [...] The individual doesn’t create by itself its language, he finds it as a spoken language and “assumes it” [...] what the child brings with him, is the mere capacity to learn how to talk and understand what is said, as well as the natural tendency for both” (Ibid: 283)

Does this mean that the objective spirit is an intersubjective experience? It certainly appears so. However, although it is tempting to conclude that the spiritual being is an intersubjective reality, Hartmann insists that we live in a *common world* because we share the same internal constitution.

“The represented, thought, alluded worlds are not arbitrary. In relation to the results, they show approximately the same consequence. And the results always contain what is common. So the represented worlds always show a partial coincidence. Otherwise it wouldn’t be possible [...] to agree on the simplest practical things [...] The intersubjectivity of experience is funded in the identity of constitution, corporal as well as psychic, therefore, it has an extra spiritual influence” (Ibid: 253).

At first sight, this common world may seem different from that intersubjective world constructed by language. The world is not a socially constructed universe.

Indeed, the experience of the world is not mediated by language but by our intrinsic structure, which is one and the same for all conscious systems. This means that we don't live in parallel realities or in mutually exclusive paradigms but in one and the same universe because we have one and the same intrinsic structure. However, as we will see in the next chapter, this is not the case for the world of the spirit.

Anyway, according to Hartmann (1933), the objective spirit doesn't have a world because its spiritual contents are separated from consciousness. The crucial question now is: do spiritual contents have a life of their own or do they necessarily need to be carried by a conscious system? More directly, is the objective spirit a conscious system? Hartmann denies so. Anyway, what are the spiritual contents of the objective spirit? Though language tops the list as a paradigmatic example, *science, morality, art and law* are also mentioned as outstanding examples, as well as the *image of the world*, among others, but more will be said about the spiritual contents of the objective spirit later on.

So far we can claim that, despite some caveats we have mentioned, *Hartmann's objective spirit qualifies as the extrinsic structure influencing conscious systems* we were looking for; that is, the heteronomy cause.

“The objective spirit is a power in the individual's life, [which] not only carries, inserts, leads from the very beginning, forms and drags the individual into its current, but also prepares a type of destiny to the personal initiative, where the latter advances independently”
(Ibid: 342).

Indeed, conscious systems are embedded in conscious systems that influence their activity. Moreover, the causal interdependence between levels of organization is always recursive despite the fact that Hartmann's trilogy of spiritual forms are not because the objective spirit and the individual spirit are structurally different. Therefore, the objective spirit is not a new level of organization that differs from the personal spirit. What Hartmann did get right was that the objective spirit is something supra-individual or beyond the personal spirit because it exists at a higher level of recursion. In addition, the objective spirit becomes a personal spirit at the next level of recursion which he would

deny; instead the elements of an objective spirit are always objective spirits, not personal spirits.

Let me conclude this chapter by saying that Hartmann has provided us with a good point of entry into my theory of conscious systems which is awaiting us in the next chapter.

Chapter 20

A Theory of Conscious Systems: My Scientific

Hypothesis

In this chapter I'm going to introduce a candidate theory that I believe may put an end to the "crisis in the knowledge of man", but before I do so, I think it is mandatory to answer Hartman's concerns with necessarily associating the spiritual being with consciousness. "The spirit as such is no way consciousness. He can have consciousness. But doesn't have it necessarily, likewise it doesn't have personality either" (2007: 374). As we saw, Hartmann (1933) claims that there is something new emerging out of the personal spirit with the transmission of spiritual contents in whichever form it takes. That something new is the separation of the spiritual contents from the personal spirit which gives birth to the objective spirit, which now has a life of its own. Moreover, the objective spirit is a community of spiritual contents that the personal spirit can experience as a common world shared with others. However, the intersubjective experience of that common world is conditioned by an extra spiritual condition shared with others; that is, one and the same stratified structure. Therefore, the spiritual being is not decoupled from the extra spiritual strata when experiencing the common world.

Yet, Hartmann is saying more: "the universe is not only the world of materials things, but also the collection of all the ontological strata; also the world of the spirit" (:186). *The world is configured by the spirit*. Indeed, with the advent of the spiritual being the universe becomes a world *for others*.

"Things by nature don't have any "being for someone". Only with the entrance of "someone", for which they can be something, begins this ontological order and, by the way, as an order that overrides all other modes of order [...] The spirit in the world is already [...] world configuring" (2007: 186).

After all, it seems that the common world is an intersubjective reality, albeit conditioned by lower level strata. Therefore, the common world is not a being in itself but a "being for someone" that constitutes it. In short, the world is not for

me as an individual, but for us as a community. The world is constituted by a community, not by language as in the standard social image of the world. Nevertheless, the common world becomes an intersubjective reality that the personal spirits assumes as its own.

“The conception of the universe [...] is never a product of the isolated thought of an individual. It is the heritage which has become historically common to the spirit that the individual assumes, grows in its meaning and, where he thinks it’s its own, its thought is always already preconfigured in it” (2007: 312-313).

It is clear from what Hartmann says that the common world of the spiritual being is not an individually constructed but a socially constructed reality. Thus, the self and other dualism is still playing its tricks. Reality is either one world or our common world and Hartmann seems to favour the latter over the former; the world “for us”. But why doesn’t he claim that the objective spirit is an intersubjective reality like Scheler’s collective person? Because that intersubjective world does not belong to the objective spirit but to the personal spirit instead. The objective spirit doesn’t have consciousness or personality, so any consciousness of the common world comes from the personal spirit. In other words, the objective spirit is an intersubjective reality experienced by conscious spirits.

But why does Hartmann deny that the objective spirit is a conscious system? First, “the objective spirit does not depend on the life and the death of a person; he goes beyond its porters since its life takes place in a different measure of time” (2007: 374). If this is accepted, the extrinsic structure in which conscious systems are embedded is supra-individual or meta-individual but it doesn’t mean it’s meta-conscious or beyond consciousness. In other words, higher levels of organization would not be recursive. However, a conscious system can only be embedded in a conscious system, just like a cognitive system can only be embedded in a cognitive system, a living system in a living system and a material system in a material system. Beer (1981) expressed this very well with his Recursive System Theorem: “If a viable system contains a viable system, then the organizational structure must be recursive” (1994: 117-118). However, I would add that if systems are embedded in systems it is because they share the same

ontological structure. So we could say that *if a system is embedded in another system, their ontological structure must be isomorphic*. In other words, systems cannot be embedded in systems with a different ontological structure.

Second, “[consciousness] originates again in each individual and disappears with him. Nobody can transmit its consciousness and not even its particular acts. Nobody can penetrate someone else’s consciousness either” (Hartmann 2007: 374). Indeed, a conscious system cannot experience the same inner experiences of another conscious system, but it can share spiritual contents, why not? In fact, spiritual contents are concepts that can express experiences but a concept is not per se an experience. As we saw in the chapter about logic, we use concepts to express thoughts but a concept in itself doesn’t express a thought. Thought comes from the unity of perceptions and ideas made possible by the mutual collaboration between the psychic and the conscious levels. Furthermore, we don’t only share scientific knowledge we can share any experience we can express in concepts.

Third, “spiritual content is in itself objective, it can be transmitted, travels freely from consciousness to consciousness. The spirit unites men, its essence is expansive” (:374). However, this is what we have just said. Concepts can be shared between conscious systems. Finally, “only man is a person. But the objective spirit is not a bigger man, just like man is neither a small objective spirit either. Possibly man is spirit, but a subjective spirit” (:381). Now, we’re already familiar with subject-object dualism. The objective spirit is not consciousness because the object is a correlate of the subject; that is, the objective spirit is a correlate of the subjective spirit. So if we combine the subject-object dualism with self-other dualism, the objective spirit is an intersubjective world experienced by personal spirits. However, if we want to remain loyal to my world-hypothesis, all and every conscious system experience one world, not an intersubjective reality constituted by society.

The heteronomy cause of conscious systems: the conceptual order.

After everything that has been said about these giants whose shoulders I stand on in the search of a theory that confronts the “crisis in the knowledge of man”, we’re now more than ready to conceptualize a theory of conscious systems that seeks to put an end to that predicament.

We live in a world that not only affects our non-conscious constitution (because we’re embedded in an extrinsic structure that is material, organic and cognitive), but that extrinsic structure is also conscious in nature and, thus, conscious systems are also influenced by the conscious systems they are embedded in. That extrinsic structure is recursive in nature and that means that its influence on conscious systems extends to the highest level of recursion since all organizational levels are causally interdependent. Therefore, we’re not only affected by the next level of recursion we’re embedded in but also by any level of recursion that our containing system is embedded in. And since all conscious systems live inside a conscious system, no conscious system is immune to the heteronomy cause.

Scientific suborder

That extrinsic structure in which conscious systems are embedded is constituted by concepts, but not intersubjective experiences, as Hartmann believed. A concept, however, is not necessarily rooted in experience, in which case I would say that it is inauthentic because it rests on an ungrounded assumption. And thus he was right in pointing out that science is the sphere of pure authenticity since “a mistake in science is something completely different from falsification or inauthenticity” (Hartmann 2007: 450)

“The inauthentic knowledge is such that, even when it has recognized the mistake, succumbs to the temptation of holding on to it. This could happen in some occasions, especially in an individual mind, when it is seduced by favoured ideas [...] but precisely that, however, can no longer be called science. It is essential to science to get rid of a recognized mistake” (Ibid: 450).

Science is, indeed, one of the conceptual suborders carried by conscious systems. That sphere comprises the *scientific concepts assumed by conscious systems*. As such, they are no longer ideas experienced by individuals alone but accepted theories that belong to the corpus of science. As Hartmann (1933) noticed,

“Nobody works in science to carry his progresses [...] to the cradle. What the individual finds, once it has been discovered and expressed; it doesn’t belong any longer to him alone, but to those who understand it. It spreads [...] exposes itself to criticism, revision, undergoes corrections and modifications, and then becomes common property (Ibid: 294-295).

This aspect of the extrinsic structure influencing conscious systems corresponds to the state of the art in the different fields of science. Though the scientific revolution is a relatively late phenomenon in the history of conscious systems, there have always been containing systems dictating what authentic science was and dismissing what was against the scientific suborder, but with the advent of the scientific method the progress of science grew exponentially. In fact, many scientists that made major discoveries in science didn’t belong to the status quo but were deviants. Examples are Galileo or Newton making their own experiments in the fringes. Many of them, however, didn’t have an easy time and they even paid with their own lives, such as Giordano Bruno, a martyr of science claiming that there were infinite universes like ours and, hence, contradicting the image of the world held by the Catholic Church. Others like Copernicus waited until their deaths to publish their work to avoid that destiny.

Moreover, in order to advance science,

“Everyone who seeks and finds must have started as an apprentice. He must grow in the given problematic situation [...] his search and finding always starts with a given problematic situation. He cannot investigate at his own will from a different level of science. The global situation in which he has grown, places him in front of a task that he understands as his own” (Hartmann 2007: 295).

Moral suborder

The next sphere of the conceptual order influencing conscious systems was also identified by Hartmann: the valid morality.

“The objective spirit has several ways of embracing the individual and attracting it towards itself. He, as valid morality, is not a set of prescriptions, but a moral feeling configuration in the life of men [...] He provides precisely the ground of moral experience” (Ibid: 299).

We can see how, Hartmann is loyal to his understanding that the objective spirit is the common world experienced by subjective spirits and, hence, he identifies valid morality with the intersubjective experience of shared values, the moral consciousness or *ethos* of the community. Again, we cannot confuse an experience with a concept, the moral suborder is not an intersubjective experience but the *moral concepts assumed by conscious systems*.

Indeed, as Scheler also noticed, “every KIND OF COGNITION is rooted in experience. Therefore ethics too, must have its foundation in “experience”” (1973: 163). But the experience of values is different from “the order prescribed by someone else. The *norm* [...] pertains to the general character of comportment (so that comportment is first understood in terms of a *concept*) (:191). Indeed, the moral suborder is akin to what Scheler named “the order of *authority*”. However, according to him, “all norms, imperatives, demands, etc – if they are not to be understood as arbitrary orders – have their foundation in [...] the *being of values* (Ibid: 187). Norms are derived from values, not the other way around.

All these insights came from criticizing the foundation of Kant’s ethics on the idea of *duty* which, according to Scheler, differs from *norms* in that “*duty* is a command that comes *from us* and resounds *in us*, in contrast to other kinds of orders coming “from outside” (Ibid: 193). However, “*neither* the concept of “*duty*” *nor* that of “*norm*” can serve as a point of departure for ethics. Nor can they function as a “*measure*” that would make the distinction between good and evil possible” (Ibid: 191). What is interesting is that Scheler distinguishes between *moral insight* and *consciousness of duty*, insisting that “an ethics of insight should not be, as it frequently is, confused with an ethics of duty” (Ibid: 194). This is crucial to demarcate morality from legality, the legal suborder, because *norms* come from

values and *laws* from duties. That is, laws are not derived from moral norms, as we generally assume. However, Scheler was wrong in believing that the experience “which imposes itself on us as a duty [...] is also an object of moral insight” (Ibid: 194). Duties and values are different kinds of conscious experiences.

Legal suborder

As we have seen the legal suborder should not be confused with the moral suborder. Conscious systems also carry legal concepts, which are different from moral concepts, and the valid legality is not automatically derived from the valid morality of a conscious system. Again, Hartmann also took notice of this sphere of the objective spirit, though he had some difficulties in proving that the objective spirit didn't have a consciousness of its own. Maybe influenced by Hegel, he understood that since valid law implies power it couldn't be separated from the political life of the objective spirit.

“Politics is more like the attitude that the objective spirit adopts in a given situation, the tendency that it follows, the task or risk it commits to, such as the type and the form in which it seeks to put it into practice. Politics with a determinate direction is always a reaction of the institutionalized community in front of a situation, which affects it” (Ibid: 318).

Indeed,

“the power, as far as it is appropriate for the valid law, doesn't distance itself from that one that it is alive in the common will of the law [...]. And precisely this will [...] is the source of power, from which it imposes itself” (Ibid: 345).

The *objective spirit* cannot impose valid law because it doesn't have a consciousness of its own, Hartmann, however, finds a way out of this problem through the representative individual that carries out the *political tendency* of the objective spirit.

“Since the objective spirit doesn't have a consciousness, and at the same time the state can't ever live without a living consciousness,

then it produces itself [...] a type of substitute: he seeks and finds for himself the consciousness than can represent him [...] in the individual human person” (Ibid: 392).

Yet,

The ruler [...] as an individual has no power. Only has power as a representative of the will of the community. This is a borrowed power [...] The same is also true for established juridical institutions that apply the law” (Ibid: 345).

Hartmann is sometimes tempted to use Rousseau’s (1789) “general will” to describe this power of the objective spirit because he realizes that the law in itself without “someone” to enforce it is dead.

“If the law was just a code of laws, there would be no difference between the living law in an age and in a certain people, and another law that is no longer valid in it. The same character of the code is shared from the very beginning with the law that has lost its validity” (Hartmann 2007: 362-363).

It seems that the sphere of legal suborder of the objective needs a conscious system to enforce the living law, which introduces an exception that clearly contradicts the nature of the objective spirit. Why do we not then accept that this sphere corresponds to the *legal concepts assumed by conscious systems*? We’re just lacking one more suborder to complete the heteronomy cause affecting conscious systems.

Artistic suborder

A few words about the difference between aesthetics and ethics provides a good starting point to define the sphere of the artistic suborder. It is known that Scheler’s hierarchy of values situated the aesthetic values beneath the ethical values, because objects are the bearers of the former and persons of the latter; and, as we know, the ego as an experiencing centre of objects is below the person as an act centre. Thus, aesthetic value-experiences were infra-personal experiences. Moreover, Scheler also claimed that aesthetic values “are values of

objects because of their *intuited picturelikeness* (in contrast to the merely “thought” object)” (Scheler 1973: 86). Therefore, aesthetic values were identified with the visual arts alone.

On the contrary, for Hartmann, art pertained to the objective spirit and consisted in the “sphere of the dominant taste in art and in life, the outer form and style that man gives to everything he does to himself and to other things. This is the sphere understood broadly as the aesthetic culture” (Hartmann 2007: 303). Moreover, “the specific type of “vision” that captures forms- and not only the one understood visually, crosses every sphere of life” (Ibid: 303). However, both Hartmann and Scheler coincide that the art of an age is the *dominant style*.

“And insofar as such an order of values is not absolute but “predominant,” it is represented in the rules of preferring among value-qualities which enspirit a given epoch. In the sphere of aesthetic values we call the systems of such rules of preferring a “style”” (Ibid: 23).

And Hartmann provides a good definition of what is meant by style,

“Style in a broad sense is everything that is common in a type of form giving of an age or human environment. But in a prominent and perhaps more conscious way, there is style in poetry, in music, in sculpture, in architecture” (Ibid: 304).

However, like in the case of morality, he treats art as an intersubjective experience, the artistic consciousness of an age. “What is “not liked anymore” is exactly what is “out of taste”. The work without taste. Its style is no longer the living style in the feeling of the style of man” (Ibid: 307). Again, the *artistic suborder corresponds to the artistic concepts assumed by a conscious system, not the artistic experiences per se*.

Indivisible conceptual order

Next, it is in fact in the context of style that Hartmann makes an important remark about the life of the objective spirit:

“This coinage of style is what has history. It is changed together with morality and law, the form of the state, language, social and political life. And its transformation is linked to the change of those others by a multiple relationship” (Ibid: 306).

That is, *all the subspheres of the conceptual order are causally interdependent*, which reminds us of the mutual interdependence that Beer (1981) found between subsystems in any metasystem. This means that these suborders are not different conscious systems, just like the subsystems of the metasystem are not viable systems either. In addition, another implication is that all conscious systems are embedded in an extrinsic structure with those same four suborders because the structure is recursive. Therefore, it makes no sense to identify a particular conscious system with a particular kind of conceptual suborder (that is, the moral suborder with the Church and the legal suborder with State), since all and every conscious system is embedded in a containing conscious system assuming an indivisible conceptual order.

Finally, running ahead of myself, Hartmann made another crucial remark which points the way to systemic interventions in conscious systems.

“The sphere of education [...] interferes with all the aforementioned spheres. In comparison with them it doesn't have its own content, but only the contents of those spiritual spheres, in which the living spirit forms its content. There is education for knowledge, for morality, for law, for the social order, for the civic life and for the political understanding, no more and no less than for language, for art, for music, for poetry, for the style of life, for religion. In this sense pedagogy is not an independent field” (Hartmann 2007: 320).

The autonomy cause in conscious systems: meaning-finding systems

Let us continue with Hartmann to see if he can provide more insights regarding other forms of causality in conscious systems. In questioning the unilateral images of the world, Hartmann mentioned teleologism as an example of a category mistake consisting in crossing the limits “downwards” by applying finality to lower ontological strata. The category of purpose found in the spiritual strata is

extended to the structure of the whole universe. This explains why philosophy has always been dominated by teleological systems.

“It is a well-known fact that the history of metaphysics forms a closed sequence of teleological systems. Its anthropomorphic ingredients are very diverse [...] theism, deism, pantheism, panentheism, emanantism, evolutionism and idealism” (1986: 229-230).

Hartmann reminds us that we cannot expect the rest of the universe to conform to our spiritual stratum. “The categories of the real world in which we live are not absolutely identical to the categories of our intellect and our intuition” (Ibid: 230). Therefore, we cannot transfer purpose to the rest of the universe since purpose only applies to the incorporeal world of the Spirit but not to the corporeal world of Nature.

In analysing the different forms of teleology through the history of philosophy, Hartmann named this type the “teleology of all” and gave several arguments of why it wasn’t the case, mainly because the structure of universe would lose its “autonomy in dependence” relationship.

This form of teleology,

“Would cancel all determination, both of formations as well as of whole strata of being, leaving only the predetermination of an absolute, no matter whether it is conceived as a cosmic reason or a cosmic will, or whatever it is; so too if we imagine it inside the world or outside the world. Making this absolute responsible for everything” (Ibid: 239).

Hartmann argued that this categorical error responds to a genuine human condition. Namely, “the *need of meaning* [...] man cannot give up on the meaningful of life, for otherwise life would be worthless” (Ibid: 353). Moreover, when trying to defend this human need against Schopenhauer’s (1818/1819) acceptance of a meaningless universe, Hartmann gives a series of arguments. Indeed, why couldn’t a stratum of the universe be meaning-giving, even if the rest of the universe doesn’t care about meaning?

“There is absolutely no reason why meaning giving cannot come from a part of the world [...] such as the human world. Meaning giving doesn’t depend as such on the scope of its power in the world, but only on two conditions: the first, that there is a being that gives it, that is, spiritual; and second, that circle of the world where he is positioned ontologically does not actively resist him (with a final activity contrary to meaning)” (Hartmann 1986: 355).

Moreover,

“There cannot be “meaning” in itself, but only “for someone” [...] The world cannot, thus, have meaning before a spiritual being appears that is ready for meaning and understands it” (Ibid: 357).

And,

“In a world already full of meaning a being with the power to give meaning would be redundant. Such a being would have no purpose in accordance to its talents, nor could he choose one [...] And so, a world devoid of meaning is the only world with meaning for him” (Ibid: 357).

Genially argued! The world can only have meaning for a meaning-giving being, and it is only because we live in a world without meaning that this is possible.

Let’s finish with a few quotations,

“The spirit is that in the world for whom the world has a meaning (Hartmann 2007: 187)”

“Only man is that “for” whom that which is valuable has meaning” (Ibid: 238)

“The spirit has the strength to grant meaning” (Ibid: 242)

In summary, Hartmann believes that “man” is a meaning-giving being, and he can only give meaning to the world because the universe is indifferent to meaning. On the contrary, I would argue that a conscious system is a *meaning-finding* system, rather than a meaning-giving system, and that it can only find meaning if the One

World is meaningful. Now we still need to discuss two more forms of causality if we want a complete picture of how conscious systems operate.

The efficient cause in conscious systems: experiences

A few things have already been said about how experiences differ from concepts and how the latter can express the former, but not necessarily through language. Well, though it goes without saying that conscious systems have conscious experiences, it may not be so obvious that experiences trigger our activity. Moreover, as we saw in the chapter about epistemology, there are inner and outer experiences, depending on whether the source is the conscious or cognitive level; and that the unity between conscious and cognitive experiences results in different kinds of knowledge: science, ethics, law and art. However, this doesn't mean that we are only triggered by knowledge. On the contrary, we are triggered by conscious experiences. Furthermore, conscious systems may be triggered by conscious experiences which will never produce true ideas, good values, right duties or beautiful visions.

So far there is nothing new in what we're saying. However, and this will be useful to clarify an important distinction, conscious experiences are not something intrinsic defining the nature of conscious systems. That is, conscious systems are not ideal beings like the German idealism presumed, in the form of Fichte's subjective idealism, Schelling's objective idealism or Hegel's absolute idealism. Not at all, *conscious experiences is not what we 'are'*. *The nature of our being is not ideal*. Inner experiences are the extrinsic powers that trigger our activity but don't constitute our nature; just like forces, stimuli and differences don't constitute the nature of material, organic and cognitive systems. Therefore, we should never confuse intrinsic with inside and extrinsic with outside.

Another feature we should bear in mind is that, like the subspheres of the conceptual order, the extrinsic powers triggering conscious systems are causally interdependent. That is, we are not triggered by one type of inner experience at a time but by all of them at once. Another implication is that no type of experience is left out of the triggering equation, just like all types of forces, stimuli and differences trigger physical, organic and cognitive systems. Therefore, it doesn't

make sense to pursue one type of experience to the exclusion of others. However, this doesn't mean that all types of experiences trigger conscious systems with the same intensity. Scientists are more prone to ideas, saints to values, politicians to duties and artists to visions, but a complete conscious system is triggered by all conscious experiences in equal measure.

The finality cause in conscious systems: ends

Let's end this chapter with the last cause of conscious systems, the final cause. We have seen that Hartmann was very critical of this category that according to him, only applied to the personal spirit. However, all philosophical systems are guilty of extending finality to the whole universe when it only applies to a part of it. Teleologism was a unilateral image of the world that needed to be avoided. We saw a paradigmatic example in Aristotle but it isn't the only one since it has always appeared in one form or another in the history of philosophy, especially in German idealism, which took Kant's (1790) regulative principle as a constitutive principle of history. As Hartmann (1933) explains, in Fichte it is the history of reason and freedom, in Schelling the history of freedom and God, and in Hegel the history of reason as freedom becoming self-conscious, and in Hartmann himself, the history of the objective spirit alone. "The historical spirit is not the individual personal spirit" (Hartmann 2007: 93)

However, we have seen that the final cause applies to every system in the universe. This is not "teleology of all", as Hartmann described it, but the "teleology of every". Teleology is intrinsic to every system, not to the universe alone. All systems in the universe have a goal-directness and, hence, all systems in the universe have a history. Furthermore, conscious systems don't have an independent history since they have a causally interdependent history with other conscious systems. Indeed, like with any other kind of system, conscious systems are embedded in conscious systems and every conscious system lives inside conscious system. More importantly, the history of conscious systems is not independent from the rest of the universe because every system lives in a causally interdependent universe, the One World. And the universe itself, as every individual system, is also end-driven.

I cannot finish this chapter without saying something about the final causes of conscious systems. In introducing the final cause in the context of living systems, you may remember that I said that *the goal-directness of a system is implied by the effect*. In other words, the goal-directness of a system is a product of its activity. When I say the product I mean the accumulated effect of a conscious system's activity. And what has been the product of our activity so far? *The history of conscious systems is the march towards the ideals of goodness, beauty, justice and truth.*

It is time to produce a table with all the forms of causality in order to answer our final secondary research question: how do conscious systems operate?

Autonomy cause	Heteronomy cause	Efficient cause	Final cause
Meaning-finding systems	Moral suborder	Values	Goodness
	Artistic suborder	Visions	Beauty
	Legal suborder	Duties	Justice
	Scientific suborder	Ideas	Truth

Table 34. My Hypothesis of How Conscious Systems Operate

It is now time to move on to the final chapter of this PhD. thesis in order to assess the primary question that has guided my research inquiry. Have we provided a foundation for systems practice, the title of my thesis?

Part Six
Systems Practice

Chapter 21

The foundations for Systems Practice

"There is nothing so practical as a good theory"

Kurt Lewin, 1951

At last we have reached our final destination after having travelled a long journey to discover the intrinsic and extrinsic structure, and in order to understand how the One World of causally interdependent systems operates. However, now we are faced with the main question that guided this research inquiry: *how to ground systems practice?* As we have seen from the previous chapter of this thesis, the answer to this question depended on making sense of the field of systems thinking. How could we provide a ground for systems practice if we couldn't see the difference between systems philosophy, General System Theory (GST) and systems science? GST, as we found out, is something in between systems philosophy and systems science that we no longer need. Moreover, the demarcation between systems philosophy and systems science isn't an easy one, but with a lot of effort I was finally able to *see* the difference. The demarcation is conceptually clear. Systems philosophy deals with the intrinsic structure and systems science with the extrinsic structure of the universe. And we need both to ground systems practice since systems methodology depends on systems science and systems science on systems philosophy.

The Old Foundations for Systems Practice

I have argued that the answers that critical systems thinking (CST) has provided so far to ground multi-method systemic interventions are ill suited because they searched for the foundation of systems practice in the integration of multiple epistemologies in a meta-pluralist theory. However, those solutions assumed the paradigm problem in the first place since taken together those epistemologies imply mutually incompatible ontologies which, of course, generates parallel realities that speak different languages. On the contrary, systems practice can only be grounded on a world image that speaks the same language: the One

World of causally interdependent systems. In short, *if we live in one and the same universe and not parallel universes, the paradigm problem in systems practice dissolves*. But let's go over those attempts once more to show how CST has failed, just like GST before it.

From the three attempts to ground methodological pluralism in the field of CST that I reviewed, only Midgley and Mingers provided an epistemological framework underpinned by multiple ontologies. In the case of Midgley (1992), multi-method systemic interventions had to be informed by 'The Three Paradigms of Ontological Thought', which as we saw correspond to the three epistemologies in Western thought; namely, realism, idealism and hermeneutics. In the first stage of his work, Midgley used Habermas's (1976, 1984) theory of 'The Three Worlds', but later dismissed this on the grounds that the theory contained universal claims given to us by the structure of language, when actually they come from different discourses in the history of Western thought and are therefore not universal. In the second stage of his work (2000), the epistemologies were made compatible using a version of process philosophy that didn't prioritize any of the boundary judgements implied by the theories behind those same epistemologies. Therefore, Midgley argued that "process philosophy can provide the grounds for a new theoretical pluralism". So despite the move from the 'Three Worlds' to Process Philosophy, the underpinning was still the same three epistemologies making different kinds statements related to different ideals, which, according to Midgley, coincided with the same claims found in different research methods.

Three Paradigms of Ontological Thought	Ideals	Research Methods
Realism	Truth	Hard Systems Methods (positivist)
Social Constructivism	Rightness	Soft Systems Methods (Interpretive and emancipatory)
Idealism	Subjective understanding	Cognitive mapping and personal construct theory

Table 6. Midgley's (1992) Three Paradigms of Ontological Thought

In the case of Mingers (1997), who proposed something very similar five years after Midgley's proposal, the framework to inform the choice of several systems methodologies in a systemic intervention was again underpinned by the Habermas's 'Three Worlds' combined with critical realism (Bhaskar 1975). Basically, methodological pluralism should be used to address the multi-dimensional world present in all real-world situations. In this case, Mingers tried to integrate the mutually incompatible ontological worlds under the banner of critical realism; namely, realism, phenomenology and hermeneutics. Finally, although it wasn't a one to one match, he suggested that each systems methodology was embedded in a different paradigm that addressed a different dimension of the multi-dimensional world.

Multidimensional World	Systems Methods	Paradigms
Material	Hard Systems Methods	Positivist
Personal (individual)	Soft Systems Methods	Interpretivist
Social	Soft Systems Methods Critical Systems Heuristics (CSH)	Interpretivist Critical

Table 7. Minger's (1997) Multidimensional World

Unfortunately, both proposals to ground methodological pluralism were attempting to integrate different systems approaches informed by epistemologies that assumed mutually incompatible ontologies and, hence, parallel worlds that speak different languages. Thus, both attempts to ground systems practice were doomed to failure. The 'paradigm problem' was inevitable since it resulted from assuming different epistemologies that were not ontology-free. In particular, the artificially fragmented world resulted from assuming the implicit dualisms embodied in Western epistemologies: the Subject-Object and the Self-Other dualisms.

So basically what the field of CST was trying to do, even if it wasn't aware of it, was informing systems approaches by Western epistemologies which assume the "science wars": "Two Sciences" (Sciences of Nature vs Sciences of the Spirit), "Two

Explanations” (Causal vs Meaningful), “Two Methodologies” (Positivist vs Interpretive)) and “Two Methods” (Quantitative vs Quantitative).

“Science Wars”	Western Epistemologies	Systems Approaches
Natural Science Causal Explanation Positivist Methodology Quantitative Method	Realism	Hard Systems Thinking (Churchman and Ackoff 1957)
	Idealism	Churchman 1971, Stafford Beer 1972, Ackoff 1974
Social Science Meaningful Explanation Interpretive Methodology Qualitative Method	Phenomenology	Soft Systems Thinking (Checkland 1981)
	Hermeneutics	Emancipatory Systems Thinking (Ulrich 1983, Midgley 1991)

Table 35. “Science Wars” assumed by CST

A New Foundation for Systems Practice

Thus, the “paradigm problem” is just the tip of the iceberg since the systems community is uncritically assuming the scientific suborder of its containing conscious system. Well, if we want to be more precise, rather than living in four parallel realities (natural world, internal world, individual world and social world), the CST community assumes two worlds: the Natural World and the Social World. Moreover, even the great Hartmann (1940) assumed the boundary separating the spatial and material Nature from the non-spatial and immaterial Spirit. However, if we want to dissolve the “crisis of science” we cannot assume two scientific pictures of the world, the Natural World painted by the natural sciences and the Common World by the social sciences. Until these are replaced with the image of the One World, the systems thinking community will continue living in two different and incommensurable worlds. Thus, my proposal is to dissolve the “crisis of science” and, thus, the “paradigm problem”, by means of the following proposal to systems thinkers.

We need to ground systems practice on the One World hypothesis by informing methodological pluralism with scientific theories that explain how causally interdependent systems operate. More importantly, since conscious systems contain heterogeneous ontological levels, methodological pluralism depends on theoretical pluralism.

To my understanding, if practice is not informed by theory, we could fail in a systemic intervention without knowing why, which would mean that we would never be able to learn from our mistakes. Furthermore, since a systemic intervention deals with causally interdependent systems containing heterogeneous ontological levels, the grounding of methodological pluralism on theoretical pluralism is fundamental. Hence, we need to choose/develop systems methodologies that are informed by the state of systems sciences. Unfortunately, except for the VSM (Beer 1972, 1979, 1985) which is informed by a theory of adaptive systems, in my view most of the existing systems methodologies won't make it. Furthermore, to flesh out the skeleton in Table 36 we need the joint collaboration of systems scientists and systems practitioners. Fortunately, I'm confident that the accumulated experience from successful practice will eventually close the gap between the systems sciences and systems practice, as Midgley (2014) concluded in his presidential address to the ISSS.

Ontological levels	Systems Theories	Systems Methodologies
Consciousness	Theory of meaning-giving systems (Hartmann and Pretel)	Education
Cognition	Theory of adaptive systems (Beer)	Management
Life	Theory of autopoietic systems (Rosen and Maturana)	Medicine
Matter	Theory of moving systems (De Broglie and Bohm)	Engineering

Table 36. Methodological Skeleton for Systems Practice

Thus, I believe I have provided a foundation for systems practice that can justify the use of different methodologies in a systemic intervention. However, in the process, I have found the panoply of systems methodologies largely wanting. This was not what I expected when I started out on my inquiry (I largely took those methodologies as given, but as requiring firmer foundations), yet this conclusion is an inevitable consequence of my adventures into systems philosophy to propose the new grounding.

Finally, I cannot end this thesis here by postulating *education* as a potential systems methodology compatible with my scientific hypothesis of how conscious systems operate. Though it goes beyond the purpose of this PhD, I feel obliged to justify my choice.

Education

For Hartmann (1933), as we have seen, education is in a unique position because it doesn't have a content of its own but nevertheless includes all and every sphere of the objective spirit. Hence, he places a great importance on education as a means to transmit that objective spirit. In addition, according to Hartmann, the common world of the spiritual being is not an individually constructed but a socially constructed reality, albeit conditioned by lower level strata. That is, the common world is not only the *infra-spiritual world* we experience due to our identical infra-spiritual constitution but, more importantly, the *intersubjective world* we live in. And the function of education is not to introduce the personal spirit to the first world of Nature but to the second world of the Spirit. Hence, the personal spirit needs to assume the spiritual contents of the objective spirit instead of learning about the One World beside the individual spirit. However, as I see it, education is not about assuming concepts rooted in the objective spirit but about learning concepts rooted in experience.

Therefore, I'm against Hartmann's two fundamental principles of all education:

- "All education is education for the objective spirit [...] there is no education for the individual spirit" (2007: 324)

- “All education is ultimately education through the objective spirit (Ibid: 321)

On the contrary, “the true teacher [is not] the objective spirit – in the figure of the competent teacher [...] in which the capacity of teaching of the objective spirit is personified and objectified” (Ibid: 323). *The true teacher develops in others the capacity of learning concepts rooted in the One World.* Therefore, all education is education for and through conscious systems.

Next, let’s move to my second fundamental disagreement. According to Hartmann, since personal spirits are embedded in the objective spirit represented by the State, all education for the spirit has to come from the State that incarnates its idea.

“All education is ultimately education for the objective spirit [...] Only the life in the state itself can educate for what they are according to its idea [...] There is no formative education of the citizen but through citizenship itself [...] the mass cannot correspond at once to its ideal essence. They have to mature historically in their task, gain intelligence through experience, through their mistakes and whims, through their history. Of course, they won’t reach the idea like this. But, what institution achieves its idea?” (Ibid: 419).

But didn’t we say that we cannot identify a conceptual suborder with a particular conscious system such as the State because all and every conscious system is embedded in an invisible conceptual order? Therefore, the education can come from any conscious system that contributes to the advancement of learning of the One World.

Third, since learning is a live journey, education should accompany conscious systems from the cradle to the grave, as Hartmann also acknowledged.

“The education journey [...] is not a privilege for a certain age [...] The school of home school is followed by the teacher’s one; this one, by the school of life [...] Learning and teaching never end in the life of an individual. A man while he lives never stops learning” (Ibid: 321).

Finally, education is not about uncritically assuming the conceptual order in which all and every conscious system is embedded in, but about questioning its authenticity. Therefore, instead of converting all conscious systems into the predominant world image, education has to treat every world image as a world-hypothesis but never as the ultimate reality. The One World is a world image that makes sense to me but, of course, it is up to others to question its authenticity. Deep down, education is about questioning the authenticity of the conceptual suborders in which conscious systems are embedded.

Chapter 22

Conclusion

Those who are awake all live in the same world. Those who are asleep live in their
own worlds

Heraclitus

Despite how much I have enjoyed writing this thesis and the journey of discovery, it is time to conclude with my main findings and possibilities for future research. The purpose of my research inquiry was to provide a ground to systems practice; in particular, multi-method systemic interventions. It occurred to me at the time I started this PhD that the parallel worlds in the field of CST resulting from the “paradigm problem” was mistaken. But it was only after understanding the epistemologies that it was trying to integrate to ground methodological pluralism that I understood that epistemologies are not ontology-free.

What CST had done was to integrate a set of Western epistemologies which, in fact, had deliberately forgotten the question of being, without realizing that every epistemology assumes an implicit ontology. Realism assumes a natural world of objective entities; idealism an internal world of mental representations; phenomenology an individual world of subjective world-views; and hermeneutics a social world of intersubjective world-views constituted by language. However, by integrating these epistemologies, CST was assuming mutually incompatible worlds resulting in the “paradigm problem”, since epistemologies are not ontology-free.

Moreover, after having reviewed the history of systems thinking, I realized that the standard view that the Three Waves lead to CST was mistaken. In the case of the Second Wave, there were two parallel reactions to the realist school (Churchman and Ackoff 1957¹², Jay Forrester early 1960s¹³). On the one hand, for the phenomenologists, “systems” are no longer objective entities, but a world-view to make sense of the individual world (Checkland 1981). On the other hand, for idealists, “systems” don’t live anymore in a world ‘out-there’, independent of

¹² First textbook on Operations Research (OR)

¹³ Creation of System Dynamics Group at MIT

our mind: they are in an internal world as mental representations (Churchman 1971, Stafford Beer 1972, Ackoff 1974). A third reaction, exemplified by the hermeneutic school, however, wasn't against realism per se, but rather against phenomenology, questioning that we can have unmediated subjective world-views since all world-views are intersubjective world-views constituted by language (Ulrich 1983, Midgley 1991).

Hence, I concluded that the assumed *history of systems thinking parallels the history of Western Thought and, hence, this is not a history of paradigm shifts leading to CST, but of the integration of different epistemological shifts leading to parallel world*. Before each systems school lived in a different world but now CST lives in four parallel realities. In particular, the CST community is actually divided between two world images: the Natural World and the Social World.

So what is my alternative world hypothesis? Like previous world images, my own world hypothesis introduces a new dualism between the intrinsic and the extrinsic. This time, however, it results from two mutually complementary images of reality: the philosophical image and the scientific image. On the one hand, the philosophical image in an intrinsic structure of causally interdependent ontological levels: Matter, Life, Cognition and Consciousness. On the other hand, the scientific image is an extrinsic structure of causally interdependent levels of organization: material systems, living systems, cognitive systems and conscious systems. Furthermore, in this world-hypothesis, there is neither a hierarchy between ontological levels nor between levels of organization, that is, neither lower ontological levels are subordinated to higher ontological levels nor lower levels of organization to higher levels of organization.

Thus, my world-hypothesis is the One World of causally interdependent systems, not a universe of causally interacting parts which assumes a hierarchical relation between the parts and the whole. Indeed, I don't see the universe as a holarchy in which the parts exist inside the whole and the whole outside the parts. There is no emergent wholes comes "out" of the interaction of the parts. I think the picture of the universe I've developed of things inside things differs fundamentally from a universe of things 'coming out' or 'existing apart' of things since there is no outside in the universe.

However, my world-hypothesis needs to be completed by a theory that expands the current spectrum of scientific theories in systems science in order to do justice to the most important actor in systems interventions, namely, conscious systems. Indeed, the One World is not exhausted by explanations of how physical, biological and cognitive systems operate. We cannot expect to improve conscious systems until we have a scientific theory. I believe my scientific hypothesis could complete both this crucial gap and, by doing so, the One World hypothesis to ground systems practice. Thus, my proposal to systems thinkers is to ground *systems practice on the One World hypothesis by informing methodological pluralism with theoretical pluralism that explains how causally interdependent conscious systems containing heterogeneous ontological levels operate.*

Finally, my One World is a world-hypothesis that makes sense to me but, of course, it is up to you to question its authenticity. Deep down, education is about questioning the authenticity of the conceptual order in which conscious systems are embedded in. And, as a proposal for further research, I have postulated education as a potential systems methodology to improve conscious systems that needs to be developed.

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