Metaphysics as a Science: A Sketch of an Overview

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Abstract

This article sketches a pragmatist method for metaphysics. Bottom-up or descriptive metaphysics describes the domains of quantification, essences and the categories of a linguistic activity by describing the linguistic activities of encountering reality and seeking and finding objects and relationships. Constructive or top-down metaphysics constructs alternative conceptual schemes, which can be used as world-view backgrounds to construct scientific paradigms and theories. Metaphysical theories are then assessed by comparing the research traditions that arise when the theories are used as conceptual schemes. The pragmatic circle can be generalized into a world-view circle of forming a conceptual scheme, articulating the scheme and drawing interpretations, and assessing and modifying the world-view. Different metaphysical conceptual schemes can be contrasted through a dialogue between languages, which allows a comparison of how different metaphysical frameworks can recognize reality and offer good models for being qua being.

Keywords: Metaphysics, Language-games, World-views, Pragmatism, Conceptual schemes.

1. Introduction

Metaphysics has been questioned since the 18th century Enlightenment and its foundational projects (see, e.g., KrV, H). Similar questions about the scientific status of metaphysics have been raised in recent debates (see Ladyman 2007, Morganti and Tahko 2017, Snellman 2023). This article offers a sketch of metaphysical methodology by building connections between language-games, quantification, world-views and frameworks for scientific research. These connections then offer an approach that leads to bottom-up descriptive metaphysics and constructive or top-down metaphysics as framework construction. Different metaphysical systems are connected with Kuhnian world-views or frameworks, which are then compared dialectically.

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Metaphysics can proceed bottom-up as a description of quantification and its categories. Hans-Johann Glock (2012) has described four approaches to metaphysics in the late 20th century: V.W.O. Quine's (1953) description of the domains of quantification, and P.F. Strawson's (1959) descriptive metaphysics, direct-reference essentialism and truthmaker theory. I argue that descriptive metaphysics can offer a metatheory for quantification, as the concept of being ("there is") is located in language-games of seeking and finding (see Hintikka 1973: EP 2, Snellman 2023). Language-games also function as categories, as they offer the possibilities of description and reidentification of their objects and hence their typical properties and essences (Garver 1994). The description of language-games and their activities of seeking and finding can then categorize the entities in their domains metaphysically. Moreover, this does not reduce metaphysics to an intralinguistic activity, as our linguistic activities build on the facts and relationships of the world (see Dickson 1995).

Metaphysics can also function in a top-down manner by offering alternative world-views and conceptual schemes to interpret experience and to help us deal with reality. The concept of conceptual schemes builds on Thomas Kuhn's (1969) and Ludwig Wittgenstein's (OC) work. A world-view offers both conceptual rules for assessing arguments and also research and experimentation practices for looking at the world from a particular angle. This also entails that all experience is theory-laden and there is no theory-neutral way of characterizing observations. These interpretations of experience by looking at the world from a given angle then lead to Gestalt-perception (see PI part 2, xi, Snellman 2023). A metaphysical system like atomism or Aristotelianism can then provide a world-view for defining a conceptual system to interpret experience and to guide research practices. Tuomas Tahko and Matteo Morganti (2017) offer an account of empirically testing metaphysics. Metaphysicians first articulate a general conceptual scheme or a metaphysical theory. The theory has abstract terms like categories, properties, causation or substances, and is then applied as a world-view level metatheory for formulating research programs or paradigms. The theories of these paradigms and research programs are then tested against the empirical results. This amounts to an indirect test of the metaphysical theory as well. A metaphysical theory then functions as a general conceptual scheme or a world-view, which is operationalized through paradigms. Paradigms then lead to theories, which give us models for interpreting phenomena, recognizing their underlying realities and seeing the phenomena as something. These levels of interpretation can be contrasted with levels of strategies of action: policy, operationalization, campaign strategies and tactics (see Ackerman and Kruegler 1994).

Tahko and Morganti's model however involves contrasting world-views and their languages. Incommensurable languages can be compared: the metaphysical circle of metaphysical theory → articulation and use as a background for science → testing of theories and the related circle of world-view → research problems → anomalies can be seen as generalizations of C.S. Peirce's (EP 1, 186-209) pragmatic circle abduction → deduction → induction. J.G. Hamann (N I, 29-31) also points out that the comparison of world-views requires contrasts between different conceptual schemes like Leibnizianism, Newtonianism and Cartesianism, leads to comparisons between their interpretative approaches as well as an account of their empirical results. This however involves a dialogue between differing conceptual systems, and testing a world-view can be approached through dialectical conversations between world-views. These dialogues can show that one system is better than another if its ways of encountering the world cannot solve its own

anomalies, recognize the successes of its competitors, or lead to obfuscation about a reality (Taylor 1995, MacIntyre 1988).

2. Language-Games and the Categories of Quantification

Metaphysics is a science of being qua being, or the attributes that concern being as such (Simons 1995). The concept of being is however a linguistically mediated concept in our language, and an approach to the logic or properties of being has to be approached through an account of the linguistic activities for the concept and the relationships in which the concept is embedded (ZH 7, 161-183). This claim needs some unpacking. First, all concepts are constituted by language-use: linguistic mediation is understood here in a fairly strong sense. From this it follows that giving an account of the concept of being (or being qua being) requires describing the contexts of use for the term "exist". C.S. Peirce (EP 2, 168) and Jaakko Hintikka (1973) have identified the activities of seeking and finding as the background of the concept of being.

The concept of being can then be approached through the study of language-games. Wittgenstein uses the concept of a language-game to emphasize that language is used as a part of an activity. He gives examples like asking questions and giving answers, and receiving battle reports and issuing orders. Language-use thus involves both words and activities. It takes place in the world and includes the world's systems. The meaning of an expression is then its use in these linguistic activities (PI 1-42, esp. 19, 23, 42). The metaphor of games for language also emphasizes that language-use is structured by rules that form its structure. Both the use of the words "let's play a game of chess" and the game of chess have rules, and the activities of playing chess connect the two sets of rules (PI 197; Snellman 2023; Glock 1997: 150-155, 193-198).

Wittgenstein's philosophical method is the grammatical description of the rules and practices of language-use. Newton Garver (1994: 217-235) argues that Wittgenstein's concept of grammar generalizes the linguistic concept of a grammar. Linguistic grammar concerns the rules of use for syntactic elements like letters and expressions, but philosophical grammar concerns the use of speech-acts, or actions where language is used. We can also develop philosophical grammar by using Hamann's distinction between elements and institutions. Expressions like "Pepsi" and "Let's play a game of chess!" are the elements of language. They have a role in a language-game or a linguistic practice, and one draws distinctions between them by distinguishing what possibilities of use or discourse-possibilities they offer. To use Garver's example, Arabic does not distinguish between the sounds "Pepsi" and "Bepsi", but "Bepsi" is ungrammatical in English because English spelling distinguishes B and P. The rules of a language-game are the institutions of the language. They are the social, linguistic and logical patterns of repeated use that determine whether an expression makes sense and how expressions are used in communicative roles and to attain communicative goals (see Snellman 2023: Ch. 4.1; Glock 1997: 193-198).

Language-games then form systems that are composed of the elements of objects and speech-acts, and the institutions of rules. Hamann (ZH 7, 169-170, see also Mainzer 2004) argues that systems analysis must distinguish between the elements while tracing the relationships and institutions interrelating them. The analysis moreover reveals the laws of language-use, and its underlying practices and realities contained in the language-game. A descriptive metaphysics of quantification can

then be given by examining the language-games for using the words "there is", "all", "some" and "none". Wittgenstein locates the rules for the expression "there is" in the activities of encountering reality and interacting with objects:

> Children do not learn that books exist, that armchairs exist, etc. etc.,—they learn to fetch books, sit in armchairs, etc. etc.
> Later, questions about the existence of things do of course arise. "Is there such a thing as a unicorn?" and so on. But such a question is possible only because as a rule no corresponding question presents itself. For how does one know how to set about satisfying oneself of the existence of unicorns? How did one learn the method for determining whether something exists or not? (OC 476).

The rules of everyday language-games then give a meaning for the terms "Books exist" and "Armchairs exist", because one can encounter a book by taking hold of it and an armchair by sitting in it. The bodily practices and criteria for encountering an object then give a meaning to the expression "there is", or ∃. C.S. Peirce and Jaakko Hintikka elaborate on this by developing game-theoretic accounts of these language-games for seeking and finding. The sentence "Some woman is adored by all Catholics" is true, because the utterer of the sentence can point to the virgin Mary and the sentence will then be true whichever Catholic (such as Pope Francis) the interpreter picks to falsify the sentence (EP 2, 168). Similarly Hintikka (1973) argues that the sentence "There are transuranium elements" is true, because one can produce them in a nuclear reactor. The rules for Peirce's and Hintikka's games for seeking and finding G(ϕ) can be given:

(1) The players are the Utterer and the Interpreter.
(2) The objects are the objects of the model M and their relationships (M, I).
(3) The game G(ϕ) in model M begins with the sentence ϕ and the interpretation {}.
(4) If $\phi = \neg\psi$, the Utterer and the Interpreter exchange turns and winning conditions, and the game continues from ψ.
(5) If $\phi = \psi \wedge \chi$, the Interpreter chooses ψ or χ, and the game continues from the subformula chosen.
(6) If $\phi = \psi \vee \chi$, the Utterer chooses ψ or χ, and the game continues from the subformula chosen.
(7) If $\phi = \exists x_n \psi x_n$ and the interpretation is s, the Utterer chooses a∈M, and the game continues from ψx_n and the assignment s∪$\{(x_n, a)\}$.
(8) If $\phi = \forall x_n \psi x_n$ and the interpretation is s, the Interpreter chooses a∈M, and the game continues from ψx_n and the assignment s∪$\{(x_n, a)\}$.
(9) If ϕ is atomic and the assignment is s, the Utterer wins iff the Interpreter loses iff ϕ is true in M on the assignment s.
(10) The sentence ϕ is true iff the Utterer has a winning strategy in the game G(ϕ). The sentence ϕ is false iff the Interpreter has a winning strategy in the game G(ϕ) (Pietarinen and Snellman 2006: 79).

Describing the language-games of seeking and finding then offers a basis for bottom-up or descriptive metaphysics. Strawson (1959: 15-86) and Glock (2012) argue that descriptive metaphysics involves the description of our conceptual scheme. Here it involves the description of the use of "there is". These descriptions also function as a background for Quinean descriptions for the values of quantification—i.e., the objects that are involved in the language-game and pointed out in it. The identification of objects then takes place in language-games

and according to its rules. Strawson argues that there are two necessary conditions for encountering and identifying objects. First, the objects must be located within a common grid of identifying reference, so that different speakers can refer to the same object. He gives the coordinate system for space (x,y,z,t) for visual identification, and the coordinate system (loudness, timbre, pitch, t) for an auditory world of sounds and voices. Second, objects must be reidentifiable across time and possible scenarios in order to be located in a grid of reference. We identify objects by locating them in a story of interactions, because it is stories that provide the character and characteristic properties of an object (see MacIntyre 1981, Smolin 2015). Physical objects are reidentified according to their causal roles and powers, and persons are reidentified through the characters they display in and through their actions (Snellman 2023).

The description of language-games for seeking and finding can then provide the identity-criteria for objects that in turn gives the essences and grounds for categorizing the objects of quantification: "Essence is expressed by grammar. […] Grammar tells what kind of object anything is. (Theology as grammar.)" (PI 371-373, see also ZH 7, 169). This Wittgensteinian and Hamannian slogan gives us a clue, how to develop a descriptive metaphysics out of the rules for language-games of seeking and finding. Grammatical description of language-games can help point out both the grids of possible properties, grids of identification and principles of reidentification in language-games. Garver describes how language-games can function as categories in the Aristotelian sense, as Aristotelian categories distinguish between different uses of "is" according to the various possible speech-acts associated with these senses (Garver 1994: 61-72). For example, "Is Viiru more of a cat than Tassu?" does not make sense because cats are substances, but "Is a fire engine redder than the red sun?" makes sense because red is a predicate or a property. Similarly, one can describe the practices of seeking and finding objects and pointing out their properties in order to get their possible property spaces and principles of reidentification (Snellman 2023: Ch. 4.3). Categories are then logical types of identity criteria for seeking and finding, and also types of objects that are typologized by these rules.

Wittgenstein distinguishes between looking at the blue colour of a vase and tracing its outline. There is a different bodily mediated sensuous practice or sensorimotor practice for pointing out colours and another for pointing out vases (PI 33-34, Noë 2004). These various habits then can be used to answer questions such as "What is the colour of the vase?" with "It's yellow" or "It's green", so yellow and green are the possible properties of the vase. Similarly, one can ask "What is the shape of the vase?" and have the possible answers "It's round" and "It's a cube", so roundness and cubeness are possible vase shapes. One can also ask questions about the location of the vase and its causal roles: "That's a nice vase. Where did you buy it?" or "Did you wash the vase? Where did you put it? Could you have put it in the cupboard?" We get a connection between questions and answers, activities of seeking and finding and properties, and identification grids and possibilities.

Question	Sensuous basic intuitions	Space of alternatives
Discourse possibilities	Possible values for aspect picked out	States of affairs

Moreover, possible answers to the questions about the purchase and location of the vase locate it in causal stories, which point to its location across time and at different possible locations. The storylines allow for reidentification across time and possible situations. Wittgenstein gives a similar grammatical description of mental states:

> Continuation of the classification of psychological concepts.
> Emotions. Common to them: genuine duration, a course. (Rage flares up, abates, and vanishes, and likewise joy, depression, and fear.)
> Distinction from sensations: they are not localized (nor yet diffuse!) […]
> Consider the following question: Can a pain be thought of, say, with the quality of rheumatic pain, but *un*localized? Can one *imagine* this?
> If you begin to think this over, you see how much you would like to change the knowledge of the place of pain into a characteristic of *what* is *felt*, into a characteristic of a sense datum, of the private object I have before my mind (Z 488, 498; quoted in Garver 1994: 70-71).

One can then categorize mental states according to how they are experienced. Their reidentification conditions are determined by their courses in time or paths of possible development in our lives, as they flare up and gradually cool down when our relationships to their objects change. One can also point to a pain in a leg, so that a pain is localized in the body. One can then characterize the category of emotions with the grid (Qualitative feeling at t, Expressions at t, Strength at t, Object at t) and reidentify them by pointing out their role in our lives by embedding them in a life story (see Snellman 2023: 4.3).

Wittgenstein also offers the concept of Übersicht to characterize his method of doing philosophy: one can define a simple language-game (e.g., PI 2) and use it as a point of comparison by isomorphically projecting it onto more complex language-games. Similarly, one can also view categories of logical types of identity criteria, which also characterize objects according to their natural types of continuity. Moreover, the term "category" also suggests that we can use mathematical category theory (see Smith 2016, Leinster 2014) to project logical types of rules onto our activities of seeking and finding and thus categorize the objects that are the objects of these activities. We can take E.J. Lowe's (1998: Ch.8) example of categorial criteria for change: the splitting of an uranium atom into a lead atom creates a new object, because the chemical element changes. The change of a tadpole into a frog and a caterpillar into a butterfly are lifecycle changes, because the DNA stays the same (see Snellman 2023: 4.3).

We thus have a rule of identification for animals: "All larvae turn into adult animals", or larva → adult. This logical rule is followed in non-metaphysical language-games by identifying lifecycle changes in frogs and caterpillars. An interpreter of nature or a researcher points to a caterpillar = Bfly (Larva) or a tadpole = Frog (Larva), and follows how they grow into a butterfly = Bfly (Adult) or to a frog = Frog (Adult) according to their real tendencies. Then there is a natural contrast or natural transformation between the cases of rule-following in the activities of applying the rule larva → adult in studying frogs or adults. Moreover, these comparisons are natural as they are fixed by the genetically fixed tendencies caterpillar → butterfly and tadpole → frog. The rules for a category thus point out logical types of activities of seeking and finding. The categorial rules also capture intrinsic necessities of DNA changes by making the contrasts made in applying the rule natural relative to the DNA change (PI 372), as the following commutes:

$$\begin{array}{ccc} \text{caterpillar = Bfly (Larva)} & \xrightarrow{DNA} & \text{butterfly = Bfly (Adult)} \\ \downarrow \exists \textit{rule contrast} & & \exists \textit{rule contrast} \downarrow \\ \text{tedpole = Frog (Larva)} & \xrightarrow{DNA} & \text{frog = Frog (Adult)} \end{array}$$

Language-games thus give the grounds for categorization, because categories are both logical types of activities of seeking and finding, and types of objects that can thus be described according to their types of properties and continuities. The focus on activities of seeking and finding and on metaphysical theories as charting models for "super-concepts" (PI 197) that can be embedded onto empirical activities also goes together as a view of metaphysical alternatives as high-level policies of looking at the world, because Gestalts and activities of seeking and finding go hand in hand.

3. Metaphysics, World-Views and the Starting-Points of Science

There is also a top-down approach to metaphysics that develops conceptual schemes for use as starting-points for scientific research. Morganti and Tahko (2017) have developed a "moderately naturalistic" approach to metaphysics. They argue that metaphysics and science have different methods but partially overlapping subjects: the abstract conceptual structures are applied as starting-points for scientific research and the theories are then tested against experience. One can next assess metaphysical theories by their fruits in a pragmatist manner (See Ochs 2004). I read Tahko and Morganti's view through a theory of frameworks in order to locate metaphysical alternatives like atomism, Aristotelianism and Spinozism as general conceptual schemes of a world-view.

Wittgenstein's *On Certainty* (OC) and Thomas Kuhn's *The Structure of Scientific Revolutions* (Kuhn 1969) are key books for the tradition of frameworks. Wittgenstein argues that the soundness and plausibility of arguments is always assessed against the background of an entire framework of propositions that function as rules in our language-games. For example, the sentence "This is a hand" is taken for granted, because it functions as a rule for seeking and finding hands and other material objects (see Hintikka 1973: 71). Learning a language-game means learning these framework propositions, so their use as standards is built into their role in the game. Kuhn's concept of a paradigm similarly explores how frameworks of scientific research (laws, examples of problem-solving, metaphysical commitments, values) structure experimental activity and the experimental activities of seeking and finding in science. A paradigm-shift and the associated shift of metaphysical commitments then leads to new Gestalt-perception of reality: burning is seen-as phlogiston escape in a phlogiston theory but it is seen-as oxidization in an oxygen theory. Paradigms moreover shift through scientific revolutions. A paradigm becomes established when it can solve key open problems with its laws and metaphysical commitments. It then offers a model for interpreting phenomena by applying the resources of the framework (laws, examples of problem-solving, metaphysical commitments, values) to solve open problems like puzzles. One paradigm is replaced by another one if it starts to encounter anomalies or open problems that it is not able to solve through its resources, and a competing paradigm can solve them.

One can take a logical point of view of the world-view commitments of a language-game, Gestalts and world-view circles. There is a strong link between Gestalt-perceptions and activities of seeking and finding. Wittgenstein (PI part 2, xi) gives the example of the puzzle-picture of a face formed by an outline of tree-branches. The picture can be seen as trees or as a face by different sensorimotor practices that embody different activities of seeking and finding. One can trace the organization of tree-trunks and see the picture as trees. One can spot the face

in the picture by tracing the outline or structure of the face, and thus see the picture as a face. Locating a picture or a phenomenon in a context moreover establishes analogies or metaphors that determine the sensuous practices of seeking and finding. The letter H can be seen as shoddy, legalese or childish by imagining drawing it shoddily, lawyers writing it, or children learning to write it. A Gestalt-perception is a thought flashing through sight, because the sensorimotor activities of seeking and finding are already proto-conceptual recognition activities in a context (see Snellman 2023: Ch. 4.2; Noë 2004: Ch.6).

Kuhn (1969) defines a paradigmatic circle of paradigm → solving open problems → anomaly → scientific revolution. The paradigmatic circle can however be seen as a world-view circle: forming a world-view → drawing interpretations → assessing and modifying world-views (see Polanyi 1959: 264-267; Naugle 2004: 310-321). The world-view circle is however a generalization of Peirce's pragmatic circle: abduction → deduction → induction. Peircean abduction means guessing the best or most natural explanation for a phenomenon, while deduction means drawing logical conclusions about the hypothesis and induction means testing the conclusions statistically. (EP 1, 186-209, EP 2, 443-445.) The exploration and testing of world-views can then be viewed through a pragmatic logic. The connections between Gestalt-perception and seeking and finding also means that exploring new ways of seeking and finding can be used to define new ways of interpreting empirical phenomena and looking at the world. They can lead to new empirical results and new ways of conceptualizing and categorizing existing results. Categorial principles and language-games rules like "This is a hand" and "All larvae grow into adult animals" can moreover be embedded onto our empirical practices of seeking and finding, so that they can be seen as a kind of abstract framework or a high-level strategy for interpreting experience.

Top-down or constructive metaphysics thus offers abstract principles or general conceptual schemes, which can be used to define new scientific paradigms and practices of seeking and finding. Metaphysical theories can help us make sense of the world in our practices and can be compared by assessing the associated world-views. Morganti and Tahko (2017) offer the following model:

(1) Metaphysicians create a general conceptual model of being qua being or the nature of some part of reality. Metaphysicians analyse the model, elaborate it and derive logical consequences of it.
(2) Metaphysical theories offer alternatives for scientific theorizing. Metaphysical theories are used as world-view- and paradigm-level backgrounds for scientific theory formation. For example, materialist atomic theories or the idea of infinitely divisible "gunk" can be used as world-view level models when forming physical theories.
(3) Metaphysical theories prove to be good or bad according to whether the paradigms and scientific theories operationalizing them manage to interpret empirical phenomena. Metaphysical interpretations are assessed with concepts like simplicity, coherence, applicability and other theoretical virtues.
(4) The use of metaphysics in forming world-view level presuppositions of scientific theories gives the abstract categorial terms (substance, relation, law of nature, property, identity, relation…) an empirical interpretation. The practice of testing hypotheses also locates the theoretical virtues of metaphysical theories in empirical interpretative practices.

We can also use Roy Bhaskar's (2008: 183-184) view of the levels of scientific research and contrast it with the levels of strategy from conflict studies (Ackerman

and Kruegler 1994: 45-48). Scientific research proceeds from a general conceptual scheme, which corresponds to policy-level strategies for viewing the world. General conceptual schemes lead to paradigms, which operationalize them by indicating how the conceptual resources of a conceptual scheme are to be mobilized to achieve its interpretative goals. Theories then offer maps or models for scientific expeditions of understanding phenomena, and they also define the campaign strategies of seeking and finding objects in a given phenomenon (see Ziman 2000: 126-132). Research practices like arguments and experimental manipulations are tactics, because they implement the strategy of interpretation provided by a theory.

General conceptual schemes like atomism are grand strategies or policies for viewing the world. A general conceptual scheme includes a network of concepts that functions as a high-level map for understanding and navigating in the world. It also offers guidelines for interpreting and explaining the world at a general level, as these concepts have their logic and associated strategies of possible application and explanation. A general conceptual scheme also has interpretative goals and often also aims at meeting practical needs in human life. It can then be given as (conceptual system, interpretative resources, goals). Newtonian mechanistic materialism, which includes atoms, voids and forces as fundamental concepts, offers an example of a conceptual scheme. Its explanations may only appeal to spatial and kinematic factors (mechanism). They must explain complex wholes in terms of their simple parts (reductionism) and fix the future based on the current state (determinism). Moreover, mechanical materialism attempted to explain the entire world by reducing everything to the movements of atoms in a void (Kallio 1996, Burtt 2015).

Paradigms like Newton's model of the solar system operationalize conceptual schemes. They define standard scientific operating procedures and values for turning the general models of a general conceptual scheme into a network of theories for interpreting phenomena: (general models, theory matrix, standard interpretative practices). (Ziman 2000: 192-198.) Alternatively, Kuhn (1969: Afterword) defines them as a matrix (laws, examples of problem-solving, metaphysical commitments, values). Newton's model of a solar system places the sun at the centre, and gravity causes planets to orbit it. The model uses Newton's law of gravity ($F = \frac{Gm_1m_2}{d^2}$). It operationalizes the mechanistic world-view, because the Sun and the planets have a place and a momentum that determine the forces in the system, and all forces are vector sums of their components. The explanation of planetary orbits is a paradigm case for explanation in Newton's model. All planets fall towards the Sun but their momentum is along their orbit, so the planets circle the Sun like a ball swirling at the edge of a string. The values of Newtonian science also privilege mathematical explanation, as dependencies are to be first expressed as mathematical dependencies and then tested empirically (Kallio 1996, Burtt 2015).

Ziman (2000: 123-132, 192-198) argues that paradigms offer a point of departure for scientific campaigns and expeditions, which aim at understanding phenomena by building theories about them. Theories and models define the strategies of these scientific campaigns, as they allow us to seek and find their objects in phenomena through interpretative activities. He also compares theories with maps and models, and models with metaphors. Theories are maps, because both theories and maps represent a functional structure in reality through use, and

these representations are for a given purpose. Theories and maps are both models, or symbolic systems representing a real one. A model uses symbols to point out the parts of a system, and its functional interrelationships according to its interactions (ZH 7, 169-170). The isomorphism of a model and the functions of a system then allow us to see the system as the model, because the isomorphism between the symbols and the phenomena give us a way of sensuously seeking and finding the functional parts and relationships of the phenomenon through theory-laden experience.

Take the example of a metaphor between DNA and codes. The metaphor of reading a file, sending it to a printer and then reading the printout can be used as a model for chemical DNA reading in a cell nucleus, MRNA transfer onto ribosomes, and protein production. This process allows us to identify (i.e., seek and find) codes in the functioning of molecules and to understand their roles in the relationships of a cell. Arguments, analogies, manipulations and experiments of the scientific interpretation are then the tactics of a scientific expedition (Ziman 2000: 147-151; Snellman 2023).

The role of top-down or constructive metaphysics can then be characterized by reading Morganti and Tahko's (2017) proposals for the scientific assessment of metaphysics and the levels of interpretative strategies through the world-view circle. The function of constructive or top-down metaphysics is to define a metaphysical theory or a world-view which then functions as a general conceptual scheme, or as a kind of policy or higher-level strategy for looking at the world. Analytic metaphysics can also draw out the logical consequences of these conceptual schemes in order to articulate their conceptual maps of reality, explanatory strategies and goals. The role of metaphysics then corresponds to the world-view formation stage of the world-view pragmatic circle (Polanyi 1959: 264-267).

These higher-level interpretations are used as a background for scientific theorizing when they are operationalized through paradigms and research programs. The paradigms also define networks of theories and possible practices of interpretation, which lead to looking at phenomena from a new angle or having a new Gestalt-perception of them. Since Gestalt-perceptions however are associated with the sensorimotor practices of seeking and finding objects, the category system of the conceptual scheme and the analogies offered by a paradigm lead to new Gestalts by defining a new ontology for theories as well. The paradigm-formation and theoretical interpretation phase also corresponds to the interpretative stage of the world-view circle (Snellman 2023, Kuhn 1969).

The role of metaphysics as formulating a background framework for paradigm- and theory-formation however calls into question Morganti and Tahko's (2017) straightforward appeal to theoretical values and abductivist methodology. Kuhn famously argues that different world-views are incommensurable, and they ascribe different meanings to theoretical virtues like simplicity and coherence (Kuhn 1969: Afterword; see also Polanyi 1959: esp. 145-171). Then the dependence of both the interpretation of theoretical values and of empirical results on a background framework leads to a puzzle: how is the testing and comparison of incommensurable world-views possible? Since linguistic activities give the background for experience and argument, the testing of theories involves a comparison of their languages. The assessment, criticism, and modification of world-views then has to involve comparing different frameworks to assess whether they are good practices for looking at reality.

4. Comparison of World-Views and Metaphysical Conceptual Schemes

Metaphysics thus deals with the conceptual schemes and grand strategies of viewing the world. Descriptive or bottom-up metaphysics attempts to characterize the language-games of quantification and encountering reality, the objects encountered and the logical types of rules and objects for categorizing them. Constructive top-down metaphysics develops conceptual schemes and rules for categories, which are then operationalized through scientific paradigms and define new ways of looking at phenomena, new Gestalts, and new activities of seeking and finding (see OC, H 214-216).

The question of scientific metaphysics is then intertwined with the question of world-views: how can different world-views be contrasted and compared? In the philosophy of science, the question has often been put in terms of incommensurability: how can we contrast different conceptual systems when they have by definition different conceptual logics and lead to different perceptions of the world? (See Kuhn 1969; Naugle 2004; Taylor 1995: Ch.3). I use Hamann's account of the comparison of incommensurable languages to generalize Peirce's pragmatic circle by describing, how one can test and compare world-views by contrasting their respective pragmatic circles in a dialogue of world-views. Hamann took up the issue of contrasting conceptual schemes as early as 1759:

> Everybody understands his language and not those of others; Descartes has understood his reason, Leibniz his, and Newton his. Do they understand themselves better through mutual conversation (untereinander)? We must learn their languages, in order to analyze their concepts; we must test their materials; we must investigate the designs of their doctrinal constructions, their grounds, their ends and the conclusions. This must not be according to their promises and presuppositions that they burden us with by offering them as axioms, empirical facts and conclusions (N I, 30-31).

Hamann then takes up the incommensurable conceptual schemes of Enlightenment thinkers, emphasizing that researchers using incommensurable languages can understand each other and also gain a better understanding of their own conceptual schemes by learning the languages of others and contrasting them with their own conceptual schemes. There are two different ways of characterizing conceptual schemes. The first uses a given conceptual scheme to translate the concepts of another language Y into one's own X, or analyse the concepts of another with a synthesis of one's own concepts (ZH 7, 175, Davidson 1984). The other describes the activities of language-use: since the concepts are located in language-games, one can describe the whole activity by, for example, giving an overview of it or rules for learning it (see Taylor 1985, 256-282, Hintikka 1997, Preface). Moreover, the axioms and materials correspond to general conceptual schemes, the empirical facts correspond to practices of drawing interpretations from the world-view and the conclusions are something to be assessed through contrast. The world-view circle of conceptual scheme → drawing interpretations → modifying and assessing a world-view then arises, but assessment takes place by comparison of multiple world-views.

Hamann also discusses the conflict of languages in a letter to Jacobi (ZH 7, 175; Bayer 2012: 156-170 = 2002: 1-21). One language X calls a phenomenon p

"faith" and related claims "true", but Y calls it a "delusion" and labels the claims false, so X and Y offer rival categories to reinterpret the same phenomena. The languages X and Y are underpinned by different world-views and underlying practices, or forms of life (PI 19), and the different world-views rest on these differing ways of acting in the world. Both X and Y aim at interpreting the concepts of others in terms of their own manner, but the dialogue is not one of static translation into a given metalanguage as in Davidson (1984). Instead, there is a constant tug-of-war between the conceptual schemes, because the interpretations conflict and both X and Y can learn from each other:

(1) The speaker of language-game X learns language-game Y and analyses the expression y of Y with the expressions of X: "y" is true iff x, x',…, "y" is used iff x, x'…
(2) The speaker of a language-game X learns language-game Y and encounters an expression y with the rules and use U_y which does not have a corresponding concept in X. X is modified to include the expression x with the rules and use U_x s.t. x and y have the same use conditions.
(3) As in 1,2 but with language-games X,Y and expressions x,y interchanged to reflect changing roles.

The language-enrichment move is one possibility that makes Hamann's scheme stronger than Davidson's. There is another possibility of using both X and Y as pointers to a larger metalanguage or a language-game Z, which can form a metatheory or a synthesis for both X and Y and includes both as limited subgames. Peirce (EP 2, 411-418) describes finding a solution to a maths problem as creating a new strategy of problem-solving or seeking and finding solutions by using current knowledge as clues. Polanyi (1959: esp. 71-76) similarly describes how a rat learns to run a maze: she gains a true understanding of the situation by formulating a mental map, which also functions as a strategy when making turns in a maze. The forming of new interpretation Z then offers a mental map or a new language-game for encountering the realities revealed by X and Y. Z is formed by taking the existing problems, the facts we encounter by trying to solve them in X and Y and the functioning of X and Y in the encounter as clues. Z then reinterprets and locates both the facts of X and Y as part of the wider map or conceptual scheme it offers, and the habits of X and Y in the language-game Z. Z can then function as a metatheory in the Davidsonian sense of translation-rules 1 and 3.

Language-games X and Y can moreover be contrasted by describing their structures as games. Hintikka (1997: Preface) argues that we can talk about the meaning of our languages because meanings are embedded in language-use and we can describe our practices of use. Taylor similarly argues that we can formulate truth- or use-conditions like rules 1-4 only by describing a language-game and its expressive functions as a whole. For example, the language-game of the builders can be described by giving its relationships (PI 2; Snellman 2023: Ch. 4.1):

(1) The players are A and B.
(2) The objects of the game are slabs, girders, pillars and cubes.
(3) The word-signs of the game are "Slab!", "Girder!", "Pillar!" and "Cube!".
(4) The context of the game is building a house. Therefore, A wins iff B wins iff B brings the material that A calls for, e.g., a slab for "Slab!" and the endpoint is e.g. (("Slab!", Slab), ("Pillar!", Pillar)…).
(5) The actions c_n of the game are the speech acts of shouting the word-signs and bringing materials.

(6) A plays at the start of the game, and when B has delivered a building-block. The actions a_n of A are shouting the word-signs of the game.
(7) B plays when A has shouted a word-sign. The actions b_n of B are bringing building-blocks to A.

Languages can then be described by describing their practices, or by using one as metalanguage to analyse the other and vice versa. They also can mutually enrich each other, either by adding concepts from the other or being a basis for a synthesis. This leads to the question of how conflicts between languages (Bayer 2012: 156-170; ZH 7, 175) are to be resolved.

MacIntyre (1988: 349-369) offers an account of comparing different traditions or world-views, which is at the same time a Hamannian conflict-of-languages model and a Peircean pragmatist view. An enquirer starts from her own tradition X and she can learn the language of Y, as in the Hamannian model. MacIntyre argues that the next step in the comparison between X and Y is to assess their strategies for dealing with the world by seeing how well they can encounter phenomena in the world by interpreting and categorizing them with their conceptual resources. Both traditions X and Y have their own epistemologies, because they have their framework rules for interpreting experience and arguments. These epistemologies or standard scientific procedures and conceptual resources then open up different ways of identification, classification and characterization of the reality that is made manifest in our activities. One then gets an account of testing world-views by looking at their activities of seeking and finding. A practice is adequate to reality or true iff it is not defeated by a future discrepancy with the revealed reality. Falsity then is failure of a representation shown by anomalies and dialectical questioning. MacIntyre's view of truth then resembles Peirce's in that we cannot know that our representations will prove correct in the future and truth means that our strategies and practices for interpretation are not defeated in the long run (see Pietarinen and Snellman 2006; EP 2, 339-341).

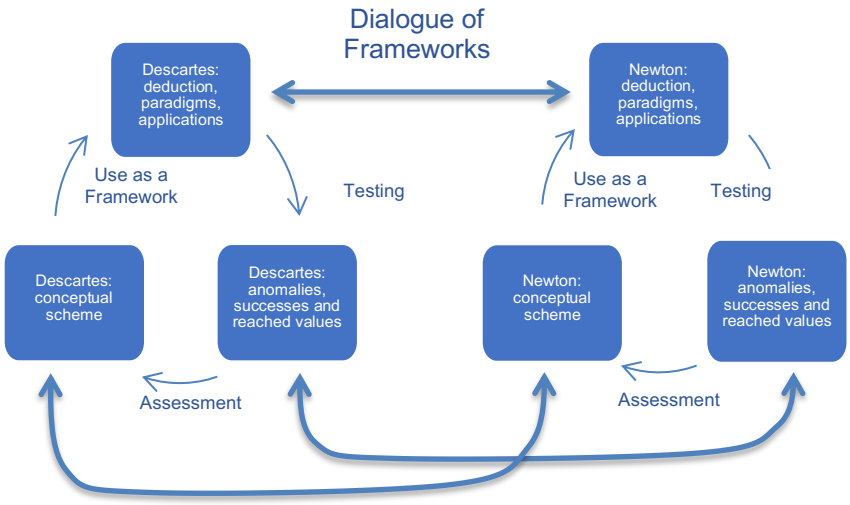
MacIntyre's pragmatist account of truth forms the basis for a comparison and testing of world-views. An enquirer views the world through the prism of the language-games X and Y, and sets out to find anomalies for their interpretation strategies. Now if X can point out some anomaly y Y cannot solve and solve it from X's resources or vice versa, X is shown to be stronger than Y and vice versa. MacIntyre considers the situation where X can not only solve Y's anomalies y, but it can also prove that Y does not have the resources to solve them and explain why Y's resources are insufficient. This however amounts to a falsification of Y in a broad Peirce-Hintikka sense. If X can show that the strategies of Y = (conceptual system, interpretative resources, goals) are not sufficient for pointing out and interpreting some phenomenon and are instead defeated, then Y is false because it has no successful interpretative strategy for recognizing the phenomenon in question. Then the insufficiency of the categories of Y is shown by using X to show that Y has no strategy to recognize the reality y out of its conceptual resources. Taylor gives further cases of comparison or testing in which a framework can be better than its competitors by recognizing some reality, value or problem:

(1) A and B are checked against a body of facts. The theory explaining more facts wins. (Popper, Peirce)
(2) A and B solve problems in parallel. A looks for anomalies in B and vice versa. If A can point out that B cannot explain some anomaly, then A wins and vice versa. (MacIntyre)

(3) A and B develop ways of dealing with reality according to their different goals. A is shown to be better if B cannot recognize the success of A out of B's resources. For instance, Aristotelian astronomers could not look into Galileo's telescope or explain the success of modern science.
(4) A takes an element from B but is better able to orient itself towards human good by rearranging the elements of B and leaving some out. E.g., banning judicial torture led to more humane punishments.
(5) The transition A → B directly removes some error, contradiction, confusion or allows one to point out some blind spot or obfuscation. E.g., recognizing one's anger leads one to take others into account and to read their actions better (Taylor 1995: Ch. 3).

Taylor's cases then depend on the success of our interpretative strategies in recognizing reality and orienting us in the space of values (see Taylor 1989, Hein 1983). The first case can recognize facts. The second case was discussed, but in the third case Aristotelian astronomy (A) cannot account for Galileian astronomy's (B) strategies for encountering reality and ways of achieving human cognitive values. In the fourth case, a ban on judicial torture (A) can better recognize and attain the good of human dignity already recognized by early modern court practice (B), although judicial criteria have changed in the move from A to B. Recognizing an error in A both improves our ability to come to terms with reality and chart the problems of B. Testing interpretations and comparing world-views then involves contrasting them and examining, if they can point out realities with their categories and conceptual resources, and if they can realize values arising out of the human condition.

These comparisons of incommensurable world-views in fact amount to comparisons between two different pragmatic circles: both A and B have their world-view circles (forming a world-view → drawing interpretations → assessing interpretations, testing and modifying world-views). The conceptual schemes of A and B are then contrasted through the dialogue of incommensurable world-views. Their abilities to form interpretations and solutions are contrasted and charted by comparing their conceptual resources and explanatory strategies. Their practical utility, value-conformity and power are explored both by pointing out realities, facts, and by anomalies in dialogue with reality. The multiple interconnected pragmatic circles running in parallel like an Enigma machine are then compared with the resources provided by their dialogue:



5. Conclusion

Descriptive metaphysics gives an account of objects by describing quantificational language-games for seeking and finding. Top-down or constructive metaphysical theorizing offers a framework for empirical investigation. It is interpreted by using it to define new practices for recognizing objects and relationships through phenomena, thus developing new ways of seeking and finding them. An underlying link between bottom-up descriptive and top-down constructive metaphysics is the role of activities of seeking and finding as the background for the concept of being and for Gestalts and world-views as well. Metaphysics thus articulates conceptual schemes and world-views for our language-games and for use in investigating and encountering the world.

The world-views explored by metaphysics are contrasted by their ability to recognize objects and to develop strategies for interpreting empirical phenomena. The contrast takes place in a dialogue between traditions, which defines a set of interrelated pragmatic circles for world-views. World-views then offer starting-points, are operationalized by paradigms and lead to theories and Gestalts. The resources of a world-view are then tested both in the pragmatic circle and through the contrasts between world-view circles in dialogue and dialectical questioning. Metaphysics is thus both bottom-up descriptive and top-down interpretative, assessed by contrasting metaphysical and quantificational systems. Metaphysics can then be a science in a broad Peircean sense, involving pragmatic circles of developing interpretations, deducing possible approaches and theories and then testing them in a dialogue of seeking and finding objects and relationships in phenomena.

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