11.
Paradigms and 'Little Nephews'. Some Lichtenbergian Re-visions of Kuhn and Wittgenstein

The word *paradigm* has perhaps been one of the most jargonized and vague philosophical terms in contemporary discourses, academic or public. It implies a typical form of objects or pattern of acts even if its use is erratic and poorly defined. It refers not only to the scientific thinking about objects but also to a wide range of very individual actions like feeling, behaving in particular ways, self-understanding etc. It covers areas as different as science, politics and fashion, including even personal hair-styling. Having in mind such a vague, and often contradictory, use of the term, prevalent not only in news media or with politicians but even with academics, it might hardly be surprising that the modern use of *paradigm* appears as an inverted mirror image of the way it was used in the classical antiquity. While using the term in our everyday language, we not only downplay a piece of the contemporary high science language into the jargon of knowledgeability. Moreover, we perform a double and genuinely Platonic operation of downplaying metaphysics by twisting it into its opposite.

The notion *paradigm* was philosophically shaped in Plato's late methodological dialogues as an answer to Aristotle's profound criticism of the central, middle-period conception of how the 'metaphysical' world of self-identical ideas relates to the so-called ever-changing world of phenomena.[1] The late Plato's answer is at its core based on his analysis of Greek everyday language where *paradigm* has a more ordinary meaning than in the language of his middle-period metaphysics that was as elevated as it sounds in the scientific jargon nowadays. Quite undramatically, it had the meaning of *example, sample, paragon,* as is well confirmed even in the most common and often occuring phrases, such as "Give an example!" It is, nevertheless, precisely this humble issue of *exemplifying* abstract theoretical subjects that has caused the notorious and spectacular quarrel over the notion of *paradigm* not only between Plato and his disciples but also among contemporary philosophers of science since the term appeared in Thomas S. Kuhn's 1962 seminal work *The Structure of Scientific Revolutions*.

Kuhn, Wittgenstein, and the Erratics of *Paradigm*

Saying this does not imply that, in the following discussion, Kuhn's social-historical philosophy of science will be denounced as a clandestine metaphysical and Platonic project. Rather conversely,

1   See an extensive and detailed discussion in chapter 5.

it only implies that Plato's concept of *paradigm* should *not*, or not primarily, be viewed as metaphysical, and that this might have some consequences for methodological issues in the contemporary philosophy of science. To put it more directly, although the contemporary Anglo-Saxon philosophies of science have interpreted the classical Platonic notion of *paradigm* as idealistic, strictly ontologically obliged and foundationalist, it must be noticed, however, that, on the other side, these allegedly metaphysical aspects of the notion are accomplished, in Plato's object-language, through an excessive use of examples, samples, analogies and similes as illustrations of theoretical subjects of different kinds, including the everyday use of the very term 'paradigm'. It is precisely these non-metaphysical—or, rather, anti-metaphysical—aspects of the metaphysics of paradigm that have been, by the same modern interpretations, deprived of their *methodological* and *epistemological* character that contains no strong, if any, ontological obligation. In the contemporary epistemology of science, however, these accounts are mostly neglected or completely ignored.

One of the typical contemporary examples of such a reductionist metaphysical reading of Plato's notion of *paradigm* as ontological standard of a class of things is to be found in the 1938 book *Experience and Prediction* by Hans Reichenbach who refers to Plato's theory of ideas as a typical (paradigmatic, as it were) example of the realistic conception of abstracts, calling it "prototype of existence".[2] By contrast, in Thomas Kuhn, paradigms are conceived of as really, though temporarily, existing social entities called scientific communities.

> "In the book the term 'paradigm' enters in close proximity, both physical and logical, to the phrase 'scientific community' (…) Paradigm is what the members of a scientific community, and they alone, share. Conversely, it is their possession of a common paradigm that constitutes a scientific community of a group of otherwise disparate men. As empirical generalizations, both those statements can be defended. But in the book they function at least partly as definitions, and the result is a circularity with at least a few vicious consequences."[3]

2   Reichenbach (1938), 94.

3   Kuhn (1977), 294–295.

However, despite such an anti-metaphysical overturning of the *notion* of *paradigm* by its sociological re-conceptualisation, it was not Kuhn who introduced the notion into the contemporary philosophy or made it fashionable. It was the 18th century German physicist Georg Christoph Lichtenberg (1742–1799) who introduced—or, rather, re-introduced—the term *paradigm* into the philosophical, scientific and literary discourse of the modern era and passed it on to a number of famous 20th-century philosophers. But not one of them, including Lichtenberg himself, is mentioned even once in Kuhn's work.[4]

Several recent reconstructions of the "pre-Kuhnian" uses of *paradigm* seem to have been motivated by Kuhn's complete silence about the history of that notion.[5] It took, however, a whole decade for the cultural-historical observation in Janik and Toulmin's 1973 book *Wittgenstein's Vienna* concerning Lichtenberg's late influence to find resonance in the theoretical debates on the philosophy of science and the issue of language.[6] One more decade later, some authors extended the list of historical mediators of Lichtenberg to include also the work of Wittgenstein's contemporaries Otto Neurath, Moritz Schlick, and Ernst Cassirer.[7] They all explicitly mention Lichtenberg and use the notion of paradigm to mean 'ideal model', 'exemplary case' or 'exemplary illustration'. To this list one can add the aforementioned H. Reichenbach who evokes Lichtenberg's "empiricist" critique of Descartes' *cogito*.[8] More interestingly, the list can be completed with G. H von Wright's

---

4   Ironically enough, the notion of *community* is the defining term in Plato's conception of *paradigm.* Although not sociological but "only" logical in character, it is essentially a network of mutually associated genera brought together by logos as a dialectically moving 'whole' (cf. *Sophistes* 253b-259b) that forms a community of researchers bound by 'love of logos' (*Theaetetus*, 146a6-8); see my discussion in ch. 4.

5   Firstly, Cedarbaum (1983), to whom all subsequent authors refer to. Rentsch 1989, Hoyningen-Huene (1989), 134. Gattei (2008), 19 (n. 55) provides a more detailed survey of differences in the conceptions of paradigm from Lichtenberg through Wittgenstein to Kuhn. The entire discussion was renewed in Wray (2011).

6   Janik and Toulmin (1973), 176: "One of the few philosophical writers who impressed [Wittgenstein] from early on was Georg Christoph Lichtenberg. Lichtenberg, an eighteenth-century professor of natural philosophy at Göttingen, had been admired by Kraus and was a major influence on Mach too."

7   Hoyningen-Huene (1993), 132–133 (n. 7).

8   Reichenbach (1938), 261.

peculiar view in his 1942 paper on Lichtenberg, in which he declares the latter's closeness to Hume, on the one hand, and, on the other, to contemporary philosophies of science, such as the empirio-criticism of Mach and logical empiricism of Carnap.[9] This is justified, as Wright points out with more detail and accuracy, by Lichtenberg's concept of philosophy as "language criticism" (*Sprachkritik*), which makes him a forerunner of the logical positivism as represented by Ludwig Wittgenstein "through whom it has exhibited a mighty influence on the thought of our times".[10] But, strangely enough, in the same move, Wright exempts Wittgenstein from a direct influence by Lichtenberg only to allow for a "rare congeniality" of both thinkers regarding their notion of philosophy as well as their overall "spiritual character". This move is not only at odds with Wright's 1958 assessment of Wittgenstein's absolute originality "without any literary sources of influence" or "ancestors in philosophy", as suggested by Cloeren.[11] The oddity does not diminish even if we take into account that Wright refers only to the *Tractatus* and not to *Philosophical Investigations* (first published 1953), which Cloeren seems to take into consideration. Quite to the contrary, the oddity becomes worse due to the obscurity of the statement itself. It is not clear how Lichtenberg's notion of philosophy as language criticism could have been a forerunner of the modern philosophy of logical positivism, "as represented in our days by Ludwig Wittgenstein", and attain, through him, "a mighty influence on the philosophy of our times", if the former—i.e. the mediating philosophy of Wittgenstein itself—has not been influenced by Lichtenberg's earlier language criticism, but remained only "congenial" to it.

Notwithstanding such differing and somewhat confusing opinions about Lichtenberg's literary and theoretical influence on the early 20th-century philosophies of science, there seems to be a consensus nowadays that Ludwig Wittgenstein, with his use of the term 'paradigm' in the *Tractatus* and *Philosophical Grammar,* as well as in *Philosophical Investigations*, is the most important mediator between Lichtenberg and Kuhn.

As already indicated, Kuhn stands apart from this whole historiographical line of Lichtenberg's reception. Although some

9   Wright (1942), 214–217. See also the discussion in Cloeren (1988), ch. 1–2.

10 Wright (1942), 217. (The footnote 1 containes several loci in the *Tractatus*.)

11 Cloeren (1988), 7.

interpreters believe to have identified one exception in Kuhn's disregard for the paradigm-doxography, his reference to one contemporary use of the term can hardly be called historical.[12] Admittedly, Kuhn is not interested in historical descriptions of the history of science, as follows clearly enough from the introductory chapter to his 1962 book *The Role for History* as well as from his two subsequent essays, "The Relations between the History and Philosophy of Science" and "The Relations between History and History of Science" (Kuhn 1977). What is more, Kuhn seems to understand the term 'historical' only *synchronically*, by relating it to the practice of a science within a period of time, each science organised around its respective 'paradigm', which are not only not interchangeable but incommensurable.[13] So much so that one can hardly speak of a *diachronic* sense of history in Kuhn but, rather, one based upon con-temporality of shared practices. It is not that paradigms *develop* through time, but sciences become historically discernible according to *altered* paradigms and according to internal epistemological and methodological criteria of successful explanation. Still, despite Kuhn's disregard for paradigm-doxography his texts abound with references to opinions about how scientific knowledge emerges, endures and changes. If viewed on this background, Kuhn's silence about Lichtenberg's role in introducing *paradigm* into his own view of how science is constituted and developed might historically not be as unproblematic as it appears legitimate.[14] Even though Kuhn offers his own narrative of how he "discovered" that the issue of paradigm is immanent to the history of science itself, both in his initial 1962 introduction of the term paradigm and in the 1974 "Second Thoughts", it appears symptomatic of the profoundly erratic character of the notion that Kuhn's explanations relate either, until 1974, to his concern with differences between the

12 As Hoyningen-Huene (1993), 133 and Gattei (2008), 19 underline, Kuhn himself refers to one use of the word 'paradigm' before him, in J. S. Bruner and Leo Postman's (1949) article "On the Perception of Incongruity. A Paradigm". See Kuhn (1962), 63 (n. 12). However, since Kuhn mentions his personal communication with "his colleague Postman" (p. 64, n. 13), it is hard to call this reference historical.

13 I will return to this point later on when dealing with Kuhn's understanding of metaphors.

14 Although Wray (2011), 384 parallels Lichtenberg's use of paradigm "apparently in a way not unlike the way Kuhn uses the term", he acknowledges, nevertheless, that "Kuhn's discovery of the concept paradigm was probably a consequence of other factors as well" (382).

natural and social sciences, or, after 1974, with how a scientific community forms a paradigm. As Wray (2011) shows:

> "By 1974, concern for understanding the differences between the natural sciences and the social sciences drops out of Kuhn's story of discovery. Instead, he claims to have invoked the notion of a paradigm to account for the consensus necessary amongst scientists in a specialty in order for them to pursue their research goals effectively."[15]

None of these two narratives relate to a historical origin of the term itself, be it modern or ancient. This neglect hardly comes from Kuhn's notorious lack of interest for diachronic histories of ideas. If it does not suprise in case of Plato, concerning his metaphysical reputation[16], in Lichtenberg's case it is completely at odds with his enormous fame among 20th-century historians and philosophers of science as one of the early founders and advocates of modern, anti-metaphysical scientific methodology in physics. Rather, it might be one of the 'vicious consequences' that Kuhn himself speaks of in attempting to dispel the circularity of his own notion of paradigm. While circulating between the assumption of a historical community "possessing" a paradigm on one hand, and of the historical existence of such a community constituted around a "possessed" paradigm on the other, Kuhn's notion of paradigm-shift as the cause of revolutions in the sciences offers no analysis of his own notion of paradigm. It is taken as a vaguely sociological category but it still contains elements of the traditional notion of paradigm. It belongs to the epistemological and methodological *pattern* around which a community is organised and by which it is given its identity. It is this circularity between the external (sociological) and internal (epistemological) aspects of Kuhn's notion of paradigm that governs, then, from within, not only his idea of science as a social formation in time but also his *silence* about the external history of the notion of paradigm itself. The paradigm-shift appears in Kuhn to be a quasi-historical category that accounts for everything in science and about science except for itself. It seems as if the very *notion* of paradigm had not changed through history and as if

---

15 Wray (2011), 381.

16 As for the classical origin, in Kuhn's central 1962 book, the name of Plato is mentioned only as a part of the title of A. Koyré's article on Galileo and Plato (Kuhn 1962, 124, n. 15), and the term 'Platonic' only in relation to the Newtonian paradigm of physical optics (12).

Kuhn's vague notion of paradigm was not but one notion, trying to avoid any firm epistemological account of itself. This is why Kuhn's notion, vague and circular as it is, disguises at once and tacitly the "close proximity" to—or perhaps even dependence on—the conception of paradigm that can be found in Lichtenberg.

Nevertheless, even if Kuhn's negligence of the history of the notion of paradigm might be excused by his attempts to clarify the notions of *change* and *revolution* rather than that history, the following lines suggest that his approach to the very notion of *paradigm* is more laden with history than one might expect:

> "[The] transformations of the paradigms of physical optics are scientific revolutions, and the successive transition from one paradigm to another via revolution is the usual developmental pattern of mature science. It is not, however, the pattern characteristic of the period before Newton's work, and that is the contrast that concerns us here. No period between remote antiquity and the end of the seventeenth century exhibited a single generally accepted view about the nature of light. Instead there were a number of competing schools and sub-schools, most of them espousing one variant or another of Epicurean, Aristotelian, or Platonic theory."[17]

In order to recognise traces of a tacit reading of Lichtenberg between the lines of Kuhn's argument, no historical mediators like the Viennese Wittgenstein or Schlick or any other are needed. The following famous lines from Lichtenberg may suffice to illustrate the proximity of its background presuppositions to Kuhn:

> "I believe that among all our heuristic pulleys none is more effective than what I have called 'paradigmata'. For I do not see why we could not take Newton's Optics as pattern for the doctrine of calcification of metals. Nowadays one has necessarily to start trying entirely new paths, even with most familiar things or, at least, those that seem to be such. Admittedly, the railways or, rather, paved ways are quite good things—but, if there is nobody willing to walk besides, little of the world would be known to us" [K 312].[18]

17 Kuhn (1962), 12.

18 In the English selection by Tester (2012), 160 only the first sentence is quoted, the rest is my translation. The whole piece reads in German: "Ich glaube unter allen heuristischen Hebezeugen ist keins fruchtbarer, als das, was ich Paradigmata genannt habe. Ich sehe nämlich nicht ein, wa-

Although it is nowadays widely recognized that Lichtenberg, an 18th-century natural philosopher embodying ideas of both the Enlightenment and early Romanticism, has essentially pre-conceived and anticipated the use of the term *paradigm* in the 20th-century philosophy of science from Wittgenstein to Kuhn, this recognition apparently ignores some relevant aspects of the issue. One of them is the resistance to the Platonic—generally took for metaphysical—connotation of *paradigm* in the pre-Kuhnian use even by those recent interpreters who fully acknowledge Lichtenberg's influence on 20th-century philosophers of science.[19] It is clear that Kuhn's sociological conception of paradigms is, on the one hand, not concerned with the traditional understanding of paradigm, without any further self-justification. On the other hand, however, Kuhn is forced—as the circularity of his sociological conception eventually proves—to enforce classical (epistemological) elements onto the notion of paradigm although it is precisely this that makes his conception circular and otherwise problematic. It is obvious that the notion of paradigm cannot refer only to the social community of 'otherwise particular men', partaking in a form of labor called science. A *paradigm* is also *what* a community possesses, as Kuhn himself concedes. Insofar as it is 'possessed and shared' by a community, it cannot be identified with the possessor (i.e. the community) and, even less, reduced to a socio-ontological category. As a consequence, there still persists, in Kuhn's notion of paradigm, a non-sociological remainder, which is not explained away, so to speak, by his socio-historical approach and this is what prevents his purportedly sociological conception of paradigm to come to terms with itself and to avoid vicious circularity. This non-sociological remainder is epistemological in nature, as is

rum man nicht bei der Lehre vom Verkalchen der Metalle sich Newtons Optik zum Muster nehmen könne. Denn man muß notwendig heut zu Tage anfangen, auch bei den ausgemachtesten Dingen, oder denen wenigstens, die es zu sein scheinen, ganz neue Wege zu versuchen. Die Gleise oder vielmehr die gebahnten Wege sind etwas sehr Gutes, — aber wenn niemand nebenher spazieren gehen wollte, so würden wir wenig von der Welt kennen." Cf. Physikalische und Philosophische Bemerkungen, Heft K [312], in Lichtenberg (1968–1972), Bd. 2, 455.

19 Cedarbaum (1983), 210 too, like Wittgenstein, Schlick, Cassirer and Reichenbach, reduces Platonic paradigms to 'forms': "To allow that the understanding consists of more than the manner in which language is used is anathema to a naturalistic epistemology. The Platonist will contend that these considerations support his claim that the mind has an inexplicable ability to perceive 'forms'".

clear from his 1974 "Second Thoughts on Paradigm", but it will come, as I will show later on in more detail, to its full recognition in Kuhn's appreciation of metaphors in science. This will immediately reveal itself as a wholly Lichtenbergian moment in Kuhn's theory.

Paradigms as 'Sounds of Liberty'. Lichtenberg

Lichtenberg was the first among modern theorists of the sciences to apply the term 'paradigm' not only to the study of things but also to the very *history* of knowledge and its linguistic (symbolic) constitution.[20] In this way, he was the first to use the term not only beyond its ontological use in antiquity but also beyond the logical and epistemological use in the early 20th-century discussions. It doesn't just designate a pattern by which a science, from within, by its conceptual apparatus, perceives outer things, but a *procedure of comprehending* which *transcends* science and constitutes it both as a discourse about things and as a historical form of meta-knowledge.[21] This is what a 'community' shares and gets its identity from. Paradigm is 'a transcendent', which means, a common structure connecting different items (objects or behaviors) in the world and different areas of sciences, such as physics and Kantian philosophy.[22] Moreover, every particular science contains, in its specific paradigm, elements that are linguistic (symbolic) in nature. Finding these elements and grouping them in types, and then comparing and grouping particular types into more general ones, constitutes the paradigmatic work of language and mind both in every particular science and in

20 See the aphorism not contained in the English selection by Tester (2012), Sudelbücher Heft J 1361 (= Bd. 2, S. 251): "Es läßt sich gewiß nach jedem was gut gesagt ist etwas Ähnliches formen, wenn es auch öfters bloß Transszendentmachung wäre. Es kann ein Paradigma abgeben. — J 1362: "Ein paradigma aufzusuchen wornach man dieses deklinieren kann."

21 The first to recognise that Lichtenberg's conception of paradigm refers also to the *history* of knowledge (Wissenschaftsgeschichte), and not only to cognition of particular objects, physical or moral, was H. Blumenberg (1971), 145–149. See also the discussion in Rentsch (1989), 77.

22 See F 475: "Transzendentes Paradigma" [Sudelbücher, Lichtenberg (1994), Bd. 1, 525; not contained in Tester (2012)]. Although Lichterberg adds no further explanations, the meaning of the formulation becomes more clear from its application: "By means of a paradigma chosen from physics, I believe one could have discovered Kantian philosophy" [K 313], in Tester (2012), 160.

general.[23] The whole procedure is enabled by the universal nature of language. The main instance, therefore, of such a 'transcendent' structure is provided by language.[24]

In this way, the basis of the notion of *paradigm* in Lichtenberg's understanding is linguistic, which means, the language is the common structure of all other specific paradigms. So much so that language can be considered as a meta-prototype or paradigm of paradigms. Being a general symbolic structure, language is what makes the very notion of paradigm universal and apt for constituting a universal epistemology of particular sciences. Moreover, this means for Lichtenberg that it is historical in its very essence because, in reality, it comes about through procedures of concrete thinking in actual cases. This leads to Lichtenberg's central meta-theoretical explanations.[25] Paradigms are not ready-made patterns for classifying multiple new and unknown phenomena, but rather *hidden* patterns that, themselves, have yet to be discovered in order for knowledge to overcome its *actual* limitations. Paradigms themselves must be sought for through new and unknown phenomena and are to be constructed into an "entire family of truths" [K 315].[26] As a method of research, being established ever anew with every act of research, paradigms are intellectually highly demanding ("of no help for fools") and presuppose "a free spirit" [K 314].[27] This method enables a researcher to

23 See J 1836: "Of what type is this, or in what does the type to which it belongs consist? (Tester 2012: 141). — See also: "Alles das Beste aus diesen Fragen zusammen zu nehmen und mit allen Paradigmen nochmals zu vergleichen." [1839] (Heft J, Bd. 2, S. 332). For an analytic view of philosophy in Lichtenberg as 'art of analysing' everyday pre-scientific world-views see Cloeren (1988), 28.

24 See F 474: "One finds in language traces of all sciences, just as one finds in language much that may be of use to the sciences" (Tester 2012, 81).

25 Cf. Physikalische und Philosophische Bemerkungen, Heft K, Bd. 2, S. 452 sq. (not contained in Tester 2012).

26 K 215: "When something new is discovered, to investigate whether it is a link in a hidden chain of an entire family of truths. [. . .]".

27 K 314: "This rule of thumb for inventing by means of paradigmata is obviously of no help to fools, for they are incapable of inventing precisely because they are fools. Yet even clever minds must be prodded to see something new; indeed, it is almost only by such means that new things can be discovered by new paths. If, as Kästner speculates, Newton discovered the law of gravity through his theory of light, then it was a paradigma. With regard to this expedient, we cannot too often remember that the clever mind still retains its natural freedom and thus that the use of such expedients does not obstruct other paths."

go entirely new ways and still "observe" and walk off the beaten track and "well paved" paths [K 312].[28]

This notion of paradigm as a revolutionary path of thinking does not only allow, in his later development, for Kuhn's exclusive reservation of paradigm to Newton's optics but gives perhaps a theoretically more fruitful explanation of how knowledge grows by directly opposing Kuhn's incommensurability thesis. As Lichtenberg writes:

> "The more experiences and experiments we accumulate in the investigation of nature, the more precarious the theories become. But it is not always good to give them up immediately on this account. For every sound hypothesis was useful for synthesizing and retaining previous phenomena. We should document contradictory experiences separately until enough have accumulated to make erecting a new structure worthwhile." [J 1602][29]

According to Lichtenberg's conception, *paradigms* do not break down historically due to their inability to account for ever new data but bring about rational accumulation of *conflicting* experiences, including irrational ones, and—by being themselves extended in the same process—they pave a way to a *continual and rational passage* to new theories. Paradigms are not only ready-made patterns but dynamic formations that come into being through the search for 'hidden chains' and 'truth families' among remote phenomena. As such, they are, in themselves, *driving parts* of *actual* natural sciences, of natural language, and of human behavior as well. Just as paradigms of languages (e.g. declension or conjugation) are parts of natural language, so they are parts of the physical, psychological and moral world. And by virtue of the exemplary way in which they exhibit the whole method, paradigms represent a *host* of cognate phenomena while being themselves extended by a new function.[30]

It is clear, then, that such a notion of paradigm privileges metaphors in language and thought over literal use of words. The following aphorism—one of several relating to different aspects of the metaphoric use of words—may suffice for illustration:

---

28 K 312 (cited above).

29 Cf. J 1602 (Tester 2012 139). Emphases are mine.

30 See the discussion in Stern (1959), 103.

"Do not deride our metaphors; after the strong fabric of a language begins to fade, they are the only way to revive it and to lend the whole life and warmth. It is incredible how much our best words have lost: the word *reasonable* has almost entirely lost its impressiveness; we understand its meaning but no longer feel it because so many men have been called reasonable. *Unreasonable* is in its own way more impressive. A reasonable child is a dopey, pious, good for nothing tattler; an unreasonable child is much better. The sound of *Liberty*." [E 274][31]

Lichtenberg's emphatic and vividly expressed appraisal for metaphors as the 'sound of Liberty' is not unmotivated. As the quotation proves, this abstract metaphor is itself metaphorised once more by a less abstract picture of impressiveness of an "unreasonable child". But this picture is linked, in a new metaphorical turn, to a concrete figure of a child, his beloved nephew 'Wilhelmchen' ("little William"). In a short diary entry referring to failed achievements in his research on the 'paradigm method', Lichtenberg contrasts the little nephew's pleasure of staying with his uncle to the obdurate attitude of his brother (the boy's father), suggesting he was deeply impressed by both the child and the research on paradigm. This line of ever stronger concretisation of the *Liberty*-metaphor ends up in establishing an indirect link, by juxtaposition, between the child and the methodical notion of paradigm.[32]

Several other observations on metaphors, less metaphorical in style, corroborate Lichtenberg's enthusiasm for metaphors both in general language and in science:

"Our best expressions will grow feeble; many words that were once vigorous metaphors are now infirm. When one is stylistically venturesome, defying imitation, this certainly aids the survival of a work so that it cannot so easily grow old." [D 362]

"On the use of metaphors: when we employ an old word, it often follows the channel dug in our understanding by the alphabet book; metaphors dig a new one and often break through entirely." [F 116]

31 Cf. Lichtenberg (2012), 69.

32 Cf. "Paradigmen-Methode etwas mißlungen aber doch viel zu Buch gebracht. Der kleine liebe Junge (Wilhelmchen) sehr vergnügt bei mir. Mein Bruder verstockt. Er wirds nach meinem Tode bereuen." [479], in: Bd. 2, Tagebücher, S. 780.

"Metaphorical language is a form of natural language that we construct from arbitrary but concrete words. This is why we find it so pleasing." ([D 468])

"The metaphor is far more clever than its author, as are many things. Everything has its depths. Whoever has eyes sees all in everything." [F 369]

"The author gives the metaphor its body, but the reader gives it its soul (…)" [F 375][33]

Surprisingly enough, a similar position can be found in Kuhn's praise of metaphors for their creation of new meanings. Moreover, the issue of metaphors in scientific discourse, which became extremely relevant in the same year as Kuhn's 1962 book appeared, seems also to have been a motive for self-reflexive reconsiderations of the incommensurability-thesis about paradigms. In his paper "Metaphor in Science" (Kuhn 1979), referring to his 1962 book on scientific revolutions, Kuhn not only declares to not ever have denied succession and comparability between historically existing paradigms, but gives a language-based explanation of the essential difference between commensurability and comparability.[34] Kuhn's explanation concerns the special theoretical issue of the linguistic reference:

"[S]uccessive theories are incommensurable (which is not the same as incomparable) in the sense that *the referents* of some of the terms which occur in both are *a function of the theory* within which those terms appear. There is no neutral language into which both of the theories as well as the relevant data may be translated for purposes of comparison" (340).

Contrary to the ontological commitment of most theories of metaphors in science, such as Richard Boyd's, one of sharp critics of Kuhn's incommensurability-thesis, we must, according to Kuhn, keep the following issue in mind:

---

[33] Cf. Tester (2012), 59, 61, 78, 79, 80.

[34] Cf. Kuhn (1979), 539: "[T]he book on which this interpretation is imposed includes many explicit examples of comparisons between successive theories. I have never doubted either that they were possible or that they were essential at times of theory choice. Instead, I have tried to make two rather different points." (All subsequent page numbers to quotations refer to this text.)

"Boyd speaks of the process of theory change as one which involves 'the accommodation of language to the world'. As before, the thrust of his metaphor is ontological: the world to which Boyd refers is the one real world, still unknown but toward which science proceeds by successive approximation. (...) What is the world, I ask, if it does not include most of the sorts of things to which the *actual* language spoken at a given time refers? (...) Does it obviously make better sense to speak of accommodating language to the world than of accommodating the world to language? (...) Is what we refer to as 'the world' perhaps a product of a mutual accommodation between experience and language?" (541–542).

It seems, then, that it is precisely the phenomenon of metaphor within language that reveals the very reason why scientific languages, for Kuhn, must be incommensurable, although they are also historically successive and empirically comparable. Historically specific scientific languages include referents that are not contained—they simply do not exist—in previous languages (paradigms) but are produced by "the actual language spoken in a specific time", just like in the metaphorical process:

"Though ostension is basic in establishing referents both for proper names and for natural kind terms, the two differ not only in complexity but also in nature (...) Where natural-kind terms are at issue, a number of acts of ostension are required. (...) I take metaphor to be essentially a higher-level version of the process by which ostension enters into the establishment of reference for natural-kind terms" (536–537).

Moreover, with reference to Max Black's famous 1962 paper on metaphor, Kuhn writes:

"As in the case of Black's interactive metaphors, the juxtaposition of examples calls forth the similarities upon which the function of metaphor or the determination of reference depend (...) [T]he same interactive, similarity-creating process which Black has isolated in the functioning of metaphor, is vital also to the function of models in science. Models are not, however, merely pedagogic or heuristic. They have been too much neglected in recent philosophy of science (...) Metaphor plays an essential role in establishing links between scientific language and the world. Those links are not, however, given once and for all" (537–538).

What we read is, firstly, that Kuhn's social-theoretical notion of paradigm as *scientific community* is translated into an inner-scientific notion of *model*; secondly, that models are the means by which scientific work operates from within; and thirdly, that models in the sciences are not merely pedagogical or heuristic but *productive* of *new referents,* just as Max Black's *interactive* metaphors are. Calling forth new similarities and new referents, they are not ontologically committed to the one existing world—"toward which science proceeds by successive approximation"—but "require a number of acts of ostension". This is what, according to Kuhn, produces non-pre-existent referents, which are "a function of the theory within which those terms appear".

On this background, the achievement which would later mark a break in the 20th-century philosophy's notion of paradigm seems not to be the sociological reconceptualisation by Thomas Kuhn in the 1960s. For, due to its circularity, it eventually brings Kuhn only so far as to evoke the need for genuine epistemological interpretations of the term 'paradigm'. Rather, it seems to be Kuhn's tacit—or at least non-analysed—transformation of metaphors into "models", containing at once an unthematised dismissal of "unreasonable" features of paradigms and the fear of untrodden paths of reason. Which is nothing less than an unacknowledged "derision of metaphors", against which Lichtenberg had already warned. It is precisely these attitudes of philosophers that would, from Wittgenstein on, accompany analytical philosophy of language for decades to come. This transformation of metaphors into models contains the heritage of Wittgenstein and his philosophical 'family', the Schlicks, Carnaps, Ryles, and others, taking paradigms for standards, so much so that the 1960s reintroduction of metaphors into Anglo-Saxon epistemology by Max Black did not only appear innovative to Kuhn but made him insensitive for Black's attempts to differentiate "strong" and "poetic" metaphors, not reducible to models, from models themselves. Despite Black's insistence on this difference, many subseqent authors did not engage in any discussion on the very difference among tropes but took the very notion of metaphor in its general meaning as representing all tropes.[35]

35 In a recent survey of disparate stances toward metaphors in the newer Anglo-Saxon philosophies of science, S. Haack bypasses the differences among tropes (cf. Haack 2019, 2057) and focuses on a critical examination of similarities and differences between imaginative literature and science. See also her earlier intervention in Haack (1987), motivated by the

Taking Paradigms for Patterns. Folk-Metaphysics

Such predicament in the understanding of metaphors, paradigms and models is the probable reason why Lichtenberg would have likely called what Janik and Toulmin describe as his heritage in early 20th-century philosophy a considerable failure. Or, at least, a one-sided view in the meta-scientific research on paradigms:

> "Lichtenberg used the notion of paradeigmata to link the formal patterns of grammatical analysis in linguistics with those of theoretical analysis in physics. Just as in grammar we relate the declension of nouns and the conjugation of verbs to certain general, standardized forms, or paradigms, so too we 'explain' natural phenomena in physics by relating puzzling events and processes to certain standard and self-explanatory forms or patterns. This notion of paradigms—by which our thought can be either directed fruitfully, or alternatively misled—has a central place in Wittgenstein's later accounts of 'logical grammar' and its role in philosophy."[36]

Lichtenberg's heritage in Wittgenstein is the selection of one aspect of Lichtenberg's complex and, to some extent, vague notion of paradigm covering both the literal and the metaphorical use of language. It is here reduced to language as rational structure, grammar, and rule, while the other, non-rational aspect of language as event, speech and transference is completely ignored. It is not only the core of Lichtenberg's theory of paradigm as linguistic activity but also of Kuhn's understanding of metaphorical links between scientific language and the world. Both conceptions break with the metaphysical (vertical and hierarchical) model of the paradigm-instances relation, traditionally ascribed to Plato, and substitute it for a model of multiple, horizontal and dispersed cross-references. As I will show later on, it is these metaphorical features of both Lichtenberg's and Kuhn's theories that allow—paradoxically as it might seem—for the Platonic use of paradigms to reappear as their ultimate and common source.

The summary by Janik and Toulmin heavily depends, as far as I can see, on Lichtenberg's later reception by Nietzsche and Wittgenstein. This is only partly sustainable in Lichtenberg's case.

controversy in Rorty and Hesse (1987) over Max Black's central thesis of a genuine meaning produced by the metaphorical use of expressions.

36 Janik and Toulmin (1973), 176.

Although Lichtenberg is a contemporary of Kant and his famous Romantic critics from the so-called Herder's Circle, sharing with them the idea of a transcendental function of language and the dependence of reason on language, and although he has, by his wit and literary style, undoubtedly influenced the aphoristic style in philosophy from the Romantics through Nietzsche to Adorno, much more is at stake here than mere style. On the one hand, it is Lichtenberg's idea and the very notion of language as 'folk philosophy', implying rules, functions and structures, that he shares with Herder and that would later be taken over into early 19th-century historical philology by W. v. Humboldt and the subsequent structural linguistics.[37] On the other hand, it is Lichtenberg's appreciation of metaphors and of 'witty mind' as "deviant" ("walking on the side") and "irrational" phenomena, both in everyday and in scientific language, and privileging them over the literal use of words and ordinary reasoning. It is precisely these new-knowledge-providing factors of language that would enable Lichtenberg—contrary to Nietzsche and Wittgenstein—to overcome the prevalence of folk-metaphysical structures in language and science towards an open-ended conception of knowledge. Admittedly, for Lichtenberg the literal use of words and reason also come to being through metaphors—and this is the common belief of the whole Romantic tradition, inherited from Rousseau and taken over by Nietzsche and later by Wittgenstein—but language as practice has priority over language as a set of rational structures, the literal (faded) use of words and reason. This is why true philosophy, for Lichtenberg, necessarily needs natural language, witty mind, and metaphors in order to reach beyond language as structure.[38] Metaphors are not

---

37 The very term "family resemblances", usually associated with Wittgenstein, is widely believed to originate from Nietzsche's "Familienähnlichkeit" of the "Indian, Greek, and German Philosophizing", but he has it from Romantic philologists and theoreticians who extended the conception of grammatical forms as language-patterns of thinking from the Indo-European to other types of languages. In his 1883 collection of aphorisms *Gay Science* Nietzsche calls these patterns 'Volksmetaphysik', forming a 'grammar constraint' (''Bann der Grammatik'') of our mind, and combines it with a Darwinist interpretation of the origin of the human language capacity. Cf. Nietzsche (1883 [1988]), § 354, "About the Genius of the Species". On Lichtenberg's anticipation of the idea of language as a world-view in Humboldt and others see also Cloeren (1988), 28.

38 In clear proximity to Herder's 1772 *Essay on the Origin of Language*, Lichtenberg writes: "Language originated prior to philosophy, and that is what makes philosophy difficult, especially when it is a matter

reducible to structures, fixed rules, "old paths" or "channel dugs", although they use language as such means. They are, instead, side paths of the mind that must be walked up and down in order for knowledge to grow through discovering 'hidden chains' and new 'truth-families'. It is clear, then, that for Lichtenberg the *deterministic* understanding of language as *antecedent mind-forming* structure—developed initially by comparative philologists and language theoreticians like Herder, Schlegel, and W. von Humboldt, and passed on, through Nietzsche, to both analytic and poststructuralist philosophers of language—is not only pre-conceived terminologically and conceptually by Lichtenberg's idea of language as 'folk philosophy' and 'truth-families'. In an apparent paradox, the determinism is *overturned* in the very act of its affirmation by Lichtenberg's idea of *the necessity* for the investigative mind to walk on *untrodden paths* in order for new knowledge to be produced and not to follow the already paved roads of folk-metaphysical structures.

As it is nowadays commonly believed, it was Wittgenstein who paralleled Lichtenberg's reaffirmation of the term *paradigm* and the classical Platonic theory of ideas, although the influence of the former cannot be directly confirmed in Wittgenstein's work.[39] It is, nevertheless, in no contradiction with the generally

of making it clear to those who do not themselves reflect very much. When philosophy speaks, it is always compelled to express itself in the language of non-philosophy" ([H 151], p. 103). For prioritizing of Lichtenberg over Herder's views see Cloeren (1988), 32. For a detailed discussion on Herder's (and Hamann's) notion of a language-based metacritique of philosophy see Mikulić (2020).

[39] This has been confirmed by Bluck (1957), 115, who refers to Wittgenstein's personal communication and also to a similar testimony by P. Geech. In Wittgenstein there is, to my knowledge, one direct mention of Lichtenberg for his example of the improper use of paradigm as transference in language. See PhG p. 461 "(...) In some ways that is instructive, since it indicates certain formal similarities, but it is also misleading, like calling something a knife that has neither blade nor handle. (Lichtenberg.)" There are, nevertheless, several other fragments in Wittgenstein where Lichtenberg's name should have been added in brackets. For Lichtenberg, paradigms are not applicable only to thought and language but also to the psychological, ethical, and political life of persons, they all can be 'declined'—and investigated for types—as other phenomena. Cf. Briefe. Nr. 644 (November-Dezember 1773), Bd. 4, S. 862. The parallel idea in Wittgenstein reads (PhI [300], 108): "It is, one would like to say, not merely the picture of the behaviour that belongs to the language-game with the words "he is in pain", but also the picture of the pain. Or, not merely the paradigm of the behaviour, but also that of the pain". For

accepted idea that Lichtenberg and other Romantics had a strong impact on Wittgenstein's turn from logic to pragmatics of meaning.[40] Paradigmatic thinking is for Wittgenstein, as much as for Lichtenberg, the *use* of paradigms consisting in operations like comparing, grouping, and classifying of natural things or actions with some item in the world, physical or abstract, which has been chosen to be 'the paradigm'. This is, however, as we have seen in Lichtenberg, only one and the "reasonable" aspect of paradigms, which now seems to prevail.

In Wittgenstein's linking of the modern and classic conceptions of paradigm as thing-standard there is a significant shift of interest and a nearly complete substitution of the former by the latter. Whereas Lichtenberg conceives of paradigms as uncovering "hidden chains" and constructing "new truths" upon non-standard paths of investigation, Wittgenstein clearly privileges the static aspects of paradigms, transposing them in a Platonic standard-copy relation. However, this change of the very core of Lichtenberg's Romantic notion of paradigm is barely perceptible if one does not adopt a broader historical reading. For it still appears consistent enough with, and justified by, Lichtenberg's emphasis on the structural (grammatical) aspects of language, on the one hand, and the corresponding ontological aspect of the notion of paradigm in Plato, on the other. But it is, nevertheless, precisely this theoretically legitimate operation of disambiguating the notion of paradigm by Wittgenstein that reduces it irreversibly to the one and central meaning of 'the standard' and reintroduces a new kind of non-foundational metaphysics. It is, then, a language-game—or, rather, a "chess-move"—by Wittgenstein through which Lichtenberg's metaphorical aspect of paradigm gets not only replaced by the literal one but becomes completely imperceptible and lost.

Standards as 'Symbol Games'. Wittgenstein

If we look more closely, however, there seems to be much more in Wittgenstein's story of paradigm than just the standard-copy relation. For Wittgenstein, paradigms (mostly called 'measure' or 'pattern' [*Maßstab, Vorbild, Muster*]) can be taken for isolated

other evidences see Cloeren (1988), 30–31. It is, then, clear that Wright's exempting of Wittgenstein from Lichtenberg's direct influence (Wright 1942: 217) can apply only to the *Tractatus*, if at all.

40 Tester (2012), 21–26.

things in the world or fictive objects, like imaginary prototypes of measures or colours, but they serve only to provide *standard* measures for comparing and not as things *to be attributed a property*. For Wittgenstein, paradigms are standards *for something else* and it is only *by virtue of representation* that they are capable of organising scientific practice. In this sense they belong to symbols and not to things to which symbols are applied. As he says in his *Philosophical Grammar*:

> "(…) in an ostensive definition I do not state anything about the paradigm (sample); I only use it to make a statement. It belongs to the symbolism and is not one of the objects to which I apply the symbolism."[41]

It is only in this sense that paradigms imply the central theoretical problem of ontology, that of 'being':

> "One would like to say, however, that being cannot be attributed to an element, for if it did not *exist*, one could not even name it, and so one could state nothing at all about it. — But let us consider an analogous case. There is *one* thing of which one can state neither that it is 1 metre long, nor that it is not 1 metre long, and that is the standard metre in Paris. — But this is, of course, not to ascribe any remarkable property to it, but only to mark its peculiar role in the game of measuring with a metre-rule. (…)

We can put it like this: This sample is an instrument of the language, by means of which we make colour statements. In this game, it is not something that is represented, but is a means of representation. And the same applies to an element in language-game when we give it a name by uttering the word 'R' — in so doing we have given that object a role in our language-game; it is now a *means* of representation. And to say 'If it did not exist, it could have no name' is to say as much and as little as: if this thing did not exist, we could not use it in our language-game. — What looks as if it *had* to exist is part of the language. It is a paradigm in our game; something with which comparisons are made. And this may be an important observation; but it is none the less an observation about our language-game — our mode of *representation*."[42]

41 Cf. PhG, 346.

42 PhI [50], 29. The sentence "What looks as if it *had* to exist is part of the

Wittgenstein contends, as we can see, that paradigms are not conceived of as ontological items in the classical sense of the term. Consequently, they do not *constitute* the world of visible things and facts in the same way Platonic ideas do. For a paradigm, 'being' is a precondition to be fulfilled only by language, as it were. Only a linguistic expression provides a thing with concreteness, with being 'this'. Again, in the *Philosophical Grammar* we read:

> "And what is our paradigm of such containing? Isn't it our language? Where are we to find what makes the wish *this* wish, even though it's only a wish? Nowhere but in the expressed wish."[43]

Therefore, paradigms constitute scientific truths by being symbols, as parts of different language-games about facts, and this is the means by which they constitute knowledge practices. It is, namely, the common rational scientific *practice* of comparison and demonstration by which we decide whether a paradigm is 'stable' enough and whether an object belongs to the extension of the paradigm itself.[44] This relationship of testability between paradigms and their instances is a matter of *use* in scientific practice, not of ontological grounding of our practice by the paradigm itself. That is because, according to Wittgenstein, the 'standard' itself has *no grounds*:

> "We are misled by this way of putting it: 'This is a good reason, for it makes the occurrence of the event probable.' That is as if we had said something further about the reason, something which justified it as a reason; whereas to say that this reason makes the occurrence probable is to say nothing except that

language" (Anscombe's translation) does not catch up with the pattern of Wittgenstein's sentence "Was es, scheinbar, geben *muß*, gehört zur Sprache" and has to be altered: "What, seemingly, *must* exist, belongs to language."

43 Cf. PhG, 150.

44 Cf. PhG, 98: "If I *succeed* in reproducing a paradigm in accordance with a prescribed rule, is it possible to use a different general rule to describe the process of copying, the way it took place?" — "That alone can be the expression of the fact that intention reaches up to the paradigm and contains a general rule" (99). — "Or, when I set this up as the right way of dividing up the world, have I a preconceived idea in my head as a paradigm? Of which in that case I can say: 'Yes, that is the way we look at things' or 'We just do want to form this sort of picture'" (186).

> this reason comes up to a particular standard of good reasons — but that the standard has no grounds!"[45]

At this point, however, it becomes clear that Wittgenstein's idea that 'being' belongs to paradigm only *by necessary implication*—being the very precondition for paradigm to be given a name and, thus, to serve as a *symbol* for something else—means that a paradigm is a paradigm *in so far* as it functions as a symbol or means of representation of properties of things and not because it is an ideally existing pre-form out of which real things would be ontologically derived. Paradigms are for the pragmaticist Wittgenstein forms of life, they organise our knowledge *about* the world as well as our practice *in* the world, which only makes them a part of the ontology of the world. Paradigms are thought-constituting symbols of properties upon which world-knowledge relies, be it purely theoretical or materialistic. Wittgenstein's conception is characterised by the holistic, even organicist assumption of isomorphic interconnections—not just parallelism and correspondences—between patterns of reasoning and cognition, on one side, and the structure of the real world, on the other. Truth refers not to the whole world, but to segments as wholes, and it is organized around a particular paradigm as an "entire truth-family", to put it in Lichtenberg's words. As long as a family holds, it *holds together* one whole world of relations. What is true in Wittgenstein's theory about the world are truth-games within the framework of paradigms, and paradigms are interconnected through family resemblances. This view is entirely Lichtenbergian: rational and Romantic at once.

Hence, what Wittgenstein adds as new to the classical concept of paradigm seems to be the replacement of the *ontological* type-token relation, which is believed to be Platonic, with a model of 'family resemblances' among different things, of which the paradigmatic one is *taken to be* only the 'standard measure' (*Maßstab*).[46] We can see this change at work in Wittgenstein's observations on "infallible paradigm" as being "the same with itself".[47] Rather

---

45 Cf. PhI [482], 144.

46 This is the sense of the only occurrence of the term *paradigm* in the Tractatus. Cf. "The solutions of the problems of logic must be simple, since they set the standard of simplicity" [5.4541], Ed. 2001, p. 55.

47 PhI [215], 90: "For identity we seem to have an infallible paradigm: namely, in the identity of a thing with itself. I feel like saying: "Here at any rate there can't be different interpretations. If someone sees a thing,

than having a rigid self-identity, we find in Wittgenstein 'the sameness' (*Gleichheit*) which is ruled, expressed and represented by the paradigm's being the same with itself. This is made possible only by the paradigm's being a measure *for others*. What distinguishes a paradigm from other members of the same family, in this respect, is not its separation from the family by virtue of its *ideality*, but because of its symbolic function as the measure of all other items within the family, equivocally called after the standard. Hence, paradigm is only the main *referent* of a name, in so far as it is chosen to perform this *function* in the language-game, in which, eventually, itself can be applied to itself and compared with itself, as a self-applied measure, so to speak. It symbolizes all other items while itself is symbolized only by itself. This means that what makes up the 'sameness' of a paradigm is not its being a separate, independent, and self-identical (supposedly Platonic) substance, but its being the *symbol* for, and of, others as well as its ability of self-representation through self-application of the symbol. On this ground, it is, eventually, only this *operation* of self-application—including the reference to itself-as-other—that gives a paradigm the status of 'infallibility' where "there are no other interpretations", where it is "absolute" in the classical-idealistic (Schellingian) sense of the term: self-identity is a split double reference *to itself as other* and only thus it is self-determining, as it were. It is "self-identical" insofar—and only insofar—as there is only itself as the other.

This feature of 'sameness' as being split in-itself, entailing the *relation* to itself *as other*, is profoundly dialectical and Platonic not only in its tacit origin but also in its conception, independently of the ontological commitment issue.[48] ●

he sees identity too."

[48] See my discussion in chapter 5 where Wittgenstein's notion of "perfect instance" and its symbolic function for paradigms is applied to Plato's idea of the 'Supreme Good'.