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Phenomenology and Logic in Peirce

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It is a central idea in the phenomenological tradition that logic is not primitive but must be founded upon phenomenology. In Husserl, this idea is already present in the *Logische Unterschungen* (1900-01; "Logical Investigations")[1], and later, he famously consecrated a whole volume to investigating this dependence - *Erfahrung und Urteil* (1939; "Experience and Judgment"). The mature Peirce, in the years after 1900, also held the idea that logic is dependent upon phenomenology. This comes out explicitly in his classification of the sciences of that period - e.g. in the Carnegie application 1902 - where the top part of the classification appears as follows:

1) Mathematics
2) Philosophy
- *a) Phenomenology*
- *b) Normative Sciences*
  - *i) Aesthetics*
  - *ii) Ethics*
  - *iii) Logic*
    - *I) Speculative Grammar or Semiotics*
    - *II) Critic*
    - *III) Speculative Rhetoric or Methodeutic*
- *c) Metaphysics*

[1] Even if the "Epokhé" terminology appeared only later, Husserl, already in the LI had the idea of a pure phenomenology bracketing existence: "Es handelt sich dabei aber nicht um grammatische Erörterungen im speziellen, auf irgendeine historisch gegebene Sprache bezogenen Sinn, sondern um Erörterungen jener allgemeinsten Art, die zur weiteren Sphäre einer objektiven *Theorie der Erkenntnis* und, was damit innigst zusammenhängt, einer *rein deskriptiven Phänomenologie der Denk- und Erkenntniserlebnisse* gehören. Diese ganze Sphäre ist es, die zum Zweck einer erkenntniskritischen Vorbereitung und Klärung der reinen Logik durchforscht werden muß; in ihr werden sich daher unsere nächsten Untersuchungen bewegen." (from the introduction to vol. II of the *Logical Investigations*, Husserl 1984, 5). Already here, Husserl marshals the idea that the dependence of logic upon phenomenology implies that logical conceptions are abstracted from *more* concrete, phenomenological experiences: "Die logische Begriffe als geltende Denkeinheiten müssen ihren Ursprung in der Anschauung haben; sie müssen durch Abstraktion auf Grund gewisser Erlebnisse erwachsen und im Neuvollzuge dieser Abstraktion immer wider neu zu bewähren, in ihrer Identität mit sich selbst zu erfassen sein." (ibid.10). As we shall see, abstraction in Peirce rather goes in the opposite direction, from logic to *more* general phenomenology. The comparison between Peirce's and Husserl's phenomenologies was initiated by Spiegelberg (1956) and his history of phenomenology (1969) includes Peirce's version.

After these follow all of the special sciences, divided into physical and psychical sciences. The general principles of classification is taken from Comte: higher sciences provide principles for the lower ones while lower ones depend upon the higher ones. Thus, Phenomenology is taken to provide principles for Logic, in all its three subfields, Semiotics, Critic (or Logic in the narrow sense), and Methodeutic (roughly, Scientific Method).

So far, the mature Peirce is on a par with nascent European phenomenology in taking logic to be dependent upon the charting of elementary structures of phenomena. This immediate agreement, however, covers some important differences with their roots in the development of Peirce's doctrine which is the subject of this paper. First, Peircean phenomenology differs considerably from Husserlian phenomenology. It seems probable that Peirce was inspired to the terminological choice of "phenomenology" from Husserl. When speaking about phenomenology, Peirce several times explicitly refers to Hegel's *Phenomenology of the Spirit* for the reference, probably because of his "ethics of terminology" advicing the giving of priority to whom made the earliest use of a given term; his doctrine of what may appear to any mind regardless of reality, does have some similarity to Hegel's idea of the emergence of the spirit through history, but even more to Husserl's notion. Furthermore, Peirce's use of the term appears only after 1900, and we know that Peirce quickly got hold of a copy of the *Logical Investigations*. A bit later, from around 1904-05, however, he substituted the notion of "phaneroscopy" (or "phenoscopy", or even "phanerochemy") for "phenomenology".[2]

The methodology indicated by Peirce for his phenomenology is not unrelated to his European counterparts, invoking a parallel to Husserl's famous principle of bracketing any supposition of existence of the phenomena investigated:

"It will be plain from what has been said that phaneroscopy has nothing at all to do with the question of how far the phanerons it studies correspond to any realities. It religiously abstains from all speculation as to any relations between its categories and physiological facts, cerebral or other. It does not undertake, but sedulously avoids, hypothetical explanations of any sort. It simply scrutinizes the direct appearances, and endeavors to combine minute accuracy with the broadest possible generalization." ("Phaneroscopy", 1905, 1.287)

The aim of this study, then, is to chart the distinct, general forms of all possible experiences - as he says when introducing the idea of Phenomenology in 1902:

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[2] See Stjernfelt 2007 ch. 6. Here, I shall use "phenomenology" and "phaneroscopy" interchangeably. "Phenomenology" became a standard notion in Peirce scholarship primarily due to Hartshorne and Weiss's use of it in the publication of Peirce's *Collected Papers* in the 1930s where they took the term as headline of the third section (out of four) of volume 1.

"... Phenomenology, or the Doctrine of Categories, whose business it is to unravel the tangled skein [of] all that in any sense appears and wind it into distinct forms; or in other words, to make the ultimate analysis of all experiences the first task to which philosophy has to apply itself. It is a most difficult, perhaps the most difficult, of its tasks, demanding very peculiar powers of thought, the ability to seize clouds, vast and intangible, to set them in orderly array, to put them through their exercises." ("Classification of the Sciences", 1902, 1.280)

The standard method often presented by Peirce is that of the meticulous scrutinizing of what is common to all direct appearances - the idea being that what seems cannot be subject to doubt.[3] Simultaneously, given the classification of the sciences, the only external aid expected is that of mathematics, with which it shares the lack of postulating any positive reality at all: "... phenomenology (...) must, if it is to be properly grounded, be made to depend upon the Conditional or Hypothetical Science of *Pure Mathematics* ..." ("The Maxim of Pragmatism" 1903, EPII 144). This standard position, however, is challenged by certain irregularities, so to speak.

It is well known what Peirce then *found* as the result of these investigations - indicated here by the identification of phenomenology with the "Doctrine of Categories". It is indeed the three categories, Firstness, Secondness, and Thirdness, which make up the bulk, if not the totality, of his Phenomenology. And it is equally well known that they were, originally, the result of his youthful efforts already almost forty years earlier, culminating in "On a New List of Categories" (1867). So this double status of the three categories poses a riddle: the results of Peirce's Phenomenology were there long before the discipline of Phenomenology itself. Or, rather, did Peirce for many years, up until the turn of the century, pursue Phenomenology without realizing it? To some degree indeed he did - and this comes out of the struggle with another German inspiration - that of Kant.

The road from Logic to Metaphysics

What Peirce found in the compact "New List" paper took its point of departure in a central Kantian idea from the first Critique - namely that the function of concepts is to synthesize perceptions. The very first statement of the paper claims "... that the function of conceptions is to reduce the manifold of sensuous impressions to unity and that the validity of a conception consists in the impossibility of reducing the

[3] "I admit that one thing involved in this idea of the supreme certainty of one's own personal existence is a thing that logic must admit, namely that what he seems to perceive he does perceive, - I mean that the propositions which, though entirely unlike percepts, he deliberately finds himself forced to admit, are truly representing elements of his percepts, are beyond criticism, since they are beyond control." (Ms. 693, 1904, "Reason's Conscience", 152)

content of consciousness to unity without the introduction of it" (EPI 1; 1.545). Peirce's analysis then investigates the steps of this reduction process. It takes its beginning in the yet uncharted material of the world indicated by attention - and works towards its end in the synthetic claim made by a true proposition. In short, a trajectory from blind Substance to articulated Being, as it were. Through this process, Substance is predicated, and Being, signified by the final proposition involving both Subject and Predicate, is expressed in the propositional claim connecting the two. Thus, Substance in itself, as the starting point, allows for no predicates but remains a mere IT, while Being, as the end point, has no substance but is a mere signification. From matter to form, as it were. Here, Peirce's later philosophy of the proposition - or "Dicisign" - takes its beginnings: propositions unite subjects - the indexical pointing out of objects - with predicates - the iconical description of the relational properties of those objects (cf. Stjernfelt 2014). This distinction of Substance and Being is a version of a Kantian claim always kept in high regard by Peirce: existence is no predicate, no amount of description may ever exhaust or determine any existing individual. What is descriptively found in the object is taken out of it by means of ensuing abstraction, and the result is the "metaphysical parts" of the object highlighted by the predication of the resulting proposition: "Before any comparison or discrimination can be made between what is present, what is present must have been recognized as such, as *it*, and subsequently the metaphysical parts which are recognized by abstraction are attributed to this it, but the it cannot itself be made a predicate." (EPI, 2; 1.547). These metaphysical parts, now, are abstracted in three steps (EPI, 6; 1.555) where the higher may be abstracted from the lower, but not vice versa:

Being

Quality (reference to a ground)
Relation (reference to a correlate)
Representation (reference to an interpretant)

Substance

Peirce works his way from Being, eventually expressed in a proposition, towards its preconditions, giving him, in turn, the three possible types of accidents which the proposition may ascribe to the substance - and finding on his way the early version of the three categories. Peirce's table of categories thus originally had five categories all in all - it is well-known how the three accidents were soon all that was left, Substance and Being being but everchanging limit points of the ongoing predication process of knowing.

Almost forty years later, these three categories were taken to form the core of Phenomenology. But in their origin, they were taken to be the metaphysically

indispensable aspects of a true proposition describing some aspect of Being. Here, a bundle of important ideas come together which forms a central axis through Peirce's development: the analysis of propositions; realism; the distinction between indicative existence and predicative description; the relation between logic and metaphysics. One central upshot is that our ontological commitments - to use Quine's term - are given by the preconditions for a true proposition to be true. What is real is what we need to presuppose to exist in order to account for the possible truth of propositions. This is made explicit already the next year, in connection with fallibilism, in "Some Concequences of Four Incapacities" (1868, EPI 52; 5.311-12):

"Now, a proposition whose falsity can never be discovered, and the error of which therefore is absolutely incognizable, contains, upon our principle, absolutely no error. Consequently, that which is thought in these cognitions is the real, as it really is. There is nothing, then, to prevent our knowing outward things as they really are, and it is most likely that we do thus know them in numberless cases, although we can never be absolutely certain of doing so in any special case. But it follows that since no cognition of ours is absolutely determinate, generals must have a real existence. Now this scholastic realism is usually set down as a belief in metaphysical fictions. But, in fact, a realist is simply one who knows no more recondite reality than that which is represented in a true representation."

And that which is represented in a true proposition implies the reality of all three universal classes of accidents - qualities, relations, representations - representable in predicates with valencies 1, 2 and 3, respectively, in Peirce's logic of relatives, finally articulated in the Algebra of Logic of 1883-85. Introspection counts as one of the paper's four incapacities - barring us from arguing from intuitions in our own psychological experiences. Instead, the logical structure of intersubjectively accepted true claims is taken as the non-introspective starting point. "That which any true proposition asserts is real, in the sense of being as it is regardless of what you or I may think about it. Let this proposition be a general conditional proposition as to the future, and it is a real general such as is calculated really to influence human conduct; and such the pragmaticist holds to be the rational purport of every concept." ("What pragmatism is", 1905, EPII 343; 5.432). Forty years later, thus, this doctrine prevails: true propositions as reality guidelines not only form the access to basic categories of reality, but also to the core of pragmatism: true general conditionals are what form our habits, more or less accessible to consciousness, because their condition of possibility is the existence of stable tendencies in reality.

Thus, metaphysically very ambitious conclusions are taken to follow from the study of logic - as Peirce never ceases to emphasize: "The *list of categories* (...) is a table of conceptions drawn from the logical analysis of thought and regarded as applicable to being" ("The List of Categories: A Second Essay", 1894, 1.300). Again,

in 1898, commenting upon the new list of 1867, he recalls how he had been running wild trying to extend Kant's category table from a lot of different sources: "I finally concluded the only way was to attack it as Kant had done from the side of formal logic." ("Comments on 'On a New List of Categories'", 1898, 1.563). Even long after Phenomenology has assumed its dignified place in Peirce's hierarchy of the sciences, this fundamental principle connecting logic and metaphysics is celebrated:

"In my studies of Kant's great *Critic*, which I almost knew by heart, I was very much struck by the fact that, although, according to his own account of the matter, his whole philosophy rests upon his "functions of judgment," or logical divisions of propositions, and upon the relation of his "categories" to them, yet his examination of them is most hasty, superficial, trivial, and even trifling [...] I was thus stimulated to independent inquiry into the logical support of the fundamental concepts called categories." ("Pragmatism", 1907, EPII, 424; 1.560)

The basis for the derivation, not only of the categories, but more generally, for any investigation of metaphysics, thus comes from a vast generalization of the Kantian principle that metaphysics is possible only on the basis of logical structure:
"Of what use does this new logical doctrine promise to be? [...] In the next place, if Kant has shown that metaphysical conceptions spring from formal logic, this great generalisation upon formal logic must lead to a new apprehension of the metaphysical conceptions which shall render them more adequate to the needs of science. In short, "exact" logic will prove a stepping-stone to "exact" metaphysics. In the next place, it must immensely widen our logical notions." ("The Logic of Relatives", 1897, 3.454)

Before we return to Peircean phenomenology, let us take an overview over Peircean results reached by means of this central Kantian trajectory from formal logic to metaphysics. Again looking back from the vantage point of his mature system, Peirce gives the following overview: "The first question, and it was a question of supreme importance requiring not only utter abandonment of all bias, but also a most cautious yet vigorously active research, was whether or not the fundamental categories of thought really have that sort of dependence upon formal logic that Kant asserted. I became thoroughly convinced that such a relation really did and must exist. After a series of inquiries, I came to see that Kant ought not to have confined himself to divisions of propositions, or "judgments," as the Germans confuse the subject by calling them, but ought to have taken account of all elementary and significant differences of form among signs of all sorts, and that, above all, he ought not to have left out of account fundamental forms of reasonings. At last, after the hardest two years' mental work that I have ever done in my life, I found myself with but a single assured result of any positive importance. This was that there are but three elementary forms of predication or signification, which as I originally named them

(but with bracketed additions now made to render the terms more intelligible) were qualities (of feeling), (dyadic) relations, and (predications of) representations." ("Pragmatism", EPII 424; 1.561)

Here, the central results of the "New List" are recapitulated along with some implications only briefly outlined back then but developed in far more detail after the turn of the century. Logic, from its core of propositions, is extended 'downwards', to "all elementary and significant differences of form", as well as 'upwards', to "fundamental forms of reasonings". The central part of logic devoted to arguments and truth preservation, is here called "critic"; but in addition to this comes a semiotic doctrine of the elements of logic which is scholastically called "speculative grammar" - and to the other side the doctrine of proposing, developing and testing the truth of propositions, "methodeutics" or "speculative rhetoric", which we would nowadays call pragmatics, the scientific parts of which would be heuristics or philosophy of science. "Speculative grammar" gives rise to Peirce's theory of signs with all its triadic distinctions, developed in detail after 1902; "Speculative rhetoric" gives rise to his many proposals regarding inference types, pragmatism, persuasion, strategies of scientific investigation, etc.

The role and efficacy of the Kantian logic-metaphysics correlation axis in Peirce can be found in the central metaphysical assumptions springing from his results in logic, in this doubly extended sense. The more logic is extended - to cover semiotics, epistemology and pragmatics - the more metaphysical results may be harvested as fruits from this Kantian logic-metaphysics highway connection. Probably this even added fuel to Peirce's burning interest in logic: new logical results now come with a double effect - in logic proper, as well as in metaphysics. To remind of a couple of the more ontologically heavy Peircean claims: The fact that general propositions may be true gives rise to his metaphysical doctrine of continuity. The fact that pragmatic investigations follow the abduction-deduction-induction cycle of methodeutics gives the metaphysical correlate that already processes in nature, like biological evolution, may realize that same structure, the appearance of new species forming a sort of natural conclusions to evolutionary arguments. The diagrammatical character of all deduction gives the metaphysical correlate that all of applied mathematical stuctures in the special sciences are diagrammatical, deductive and observable.

So, the royal road leading from results in formal logic to claims in metaphysics not only gives rise to the three basic categories, but also to some of the most ambitious and contested claims of Peircean metaphysics. Before the appeareance of Peircean Phenomenology in early 20C, however, such results seem squarely to belong to metaphysics - to Peirce the science which describes reality on the most general level (and, as such, sometimes given the place as the first positive science in the classification of the sciences). What happens with the emergence of

Phenomenology around 1902 is an ambitious reshaping of the overall philosophical architectonics, so that what was earlier relegated to metaphysics is now divided into two parts - one addressing reality in categorical propositions, preserving the title of metaphysics, one the one hand, and, on the other, a much more general discipline, addressing any possible conception, real or not, now acquiring the new title of Phenomenology, bracketing all reality assumptions. It is really not evident which additional results, on top of the three categories, Peirce would now like to include in Phenomenology rather than in metaphysics - a question which certainly merits some scrutiny. But it is certainly the case that the main results craved for Phenomenology - the three categories - were originally the basic and indeed founding Peircean result of the Kantian logic-metaphysics axis.

From Logic to Phenomenology

And that seems to imply that Phenomenology *did* learn from Logic. Would this, now, run counter to Peirce's Comtean claim for the higher place of Phenomenology as compared to Logic in the mature classifications of the sciences and the dependence of the latter on the former? The higher sciences - so the idea - should provide principles for the lower ones thus dependent upon them. But Phenomenology seems to have received even its core principles - the three categories - from a *lower* discipline, namely Metaphysics, and ultimately Logic. An immediate conclusion from this may seem to be that the ontological dependence hierarchy of sciences does not imply any privileged trajectory of discovery. It is also not the case that applied mathematics, in the special sciences, inherits mathematical structure via the explicit intermediary of e.g. Phenomenology and other intervening sciences in the hierarchy. This points to the fact that the traffic between disciplines in that hierarchy is not only the top-down movement between adjacent levels, giving principles from higher sciences to immediately lower ones ontologically depending upon them. Rather, a bottom-up traffic provides material from the lower sciences to the higher ones, appearing there by abstraction. Thus, a further, primary type of interaction between the sciences in Peirce's classification seems to that of abstracted material from the lower to the higher ones - Phenomenology thus receiving its basic inventory via the Kantian road from Logic.

But this also holds important teachings as to the kind of relation holding between Phenomenology and Logic in Peirce. We should not assume Phenomenology to be completable before Logic, so to speak. Particularly, it is not the case that the ontological priority of Phenomenology over Logic should imply any sort of *temporal* priority of it in the process of gaining knowledge. This is already evident in the compact argument of the "New List": even if a process of thought is taken to go from unanalyzed Substance and to analysed Being, the philosophical unraveling of it goes in the opposite direction. The possession of a true proposition is taken to be

the starting point - similar to Kant's "fact of science" - and the argument of the paper uncovers successive levels of presupposition to the articulation of that proposition. The idea is not that the mind genetically begins with simpler experiences, and then builds up true propositions step by step. The mind is always-already in a chain of articulating and inferring propositions - continually attracting new input from unity-forming processes. This forms a contrast to the increasing evolution from static to so-called "genetic" phenomenology in Husserl, where perceptual experience is taken, in *Experience and Judgment*, to be the non-logical starting point from which logical articulations comes only at a later, higher and supposedly more abstract level. In Peirce, perception is rather always-already experienced as propositional. And in the philosophical discovery process, both Metaphysics and Phenomenology depend upon Logic - because charting the preconditions of true propositions forms the central procedural axis.

But we have no reason to expect that ontological dependence relations - from which the hierarchy of sciences is constructed - should shape, simultaneously, the trajectory of cognition nor that of research. In that case, the whole of mathematics would have to be completed before trustworthy results could be reached in phenomenology, the whole of phenomenology to be completed before any results could be found in the normative sciences including logic, the whole of these to be completed before metaphysics, etc. This is obviously not the case, given the directions of Peirce's own research activities.

Why, now, did Peirce add Phenomenology or Phaneroscopy to the sciences around 1902, giving it the privileged place of second only to mathematics, and making the first and central result of the Kantian logic-metaphysics derivation, the doctrine of categories, the central matter of it? And what does it imply as to the relation between Phenomenology and Logic?

Even if the derivation of the categories firmly follows the logic-metaphysics trajectory, it seems to be his increasing realism which makes him realize that even if discovered in logic, the status of the categories may be more general than that. In the mid-80's, and developed at length in the 1888 "Guess at the Riddle" book synopsis, the categories which began their carreer as a classification of predicates, are generalized and hypostatically bstracted into metaphysical properties of the universe itself: *indeterminacy, haecceity,* and *intelligibility* - traceable in different shapes across a series of disciplines, from reasoning, metaphysics, and psychology, over physiology, biology, physics, to sociology and theology, that is, a central selection of all sciences lower than mathematics.[4] This omnipresence of categories forms the germ of Peircean phenomenology - giving the idea they inherited the structure from mathematics. The Logic of Relations had established the fact that there were three

[4] "Thus, intelligibility, or reason objectified, is what makes Thirdness genuine." ("A Guess at the Riddle", 1888, EPI 255; 1.366); "Indeterminacy, then, or pure firstness, and hæcceity, or pure secondness, are facts not calling for and not capable of explanation" (ibid. 275; 1.405).

classes of predicates defined by valencies, 1-, 2- and 3-valent, respectively, apart from a null-class of non-relatedness. In what has later became known as the Reduction Theorem (Burch (1991)), Peirce argued that predicates of all valencies higher than 3 would be analyzable into combination of the three basic predicate categories. This formal structure increasingly appeared to Peirce to be motivated not only by logic, but also directly by mathematics, as being a structure to the same degree informing logic and metaphysics - "metaphysics being an imitation of geometry", so "A Guess at the Riddle" (EPI 246; 1.354).

This became the subject of explicit reflection already in 1896, six years before the launching of the new discipline of Phenomenology in the *Minute Logic*. Here, Peirce made an attempt to "develop my categories from within", that is, providing for them their own foundation, not dependent upon logic in which they were discovered, and pertaining to all possible universes. Here, he writes: "The questions which are here to be examined are, what are the different systems of hypotheses from which mathematical deduction can set out, what are their general characters, why are not other hypotheses possible, and the like. (...) This much, however, is indisputable: if there are really any such necessary characteristics of mathematical hypotheses as I have just declared in advance that we shall find that there [are], this necessity must spring from some truth so broad as to hold not only for the universe we know but for every world that poet could create." (1.417). Thus, the Categories are now taken to be not only logical and metaphysical principles for reality, but principles for every possible world conceivable. As such, their investigation is independent upon logic and metaphysics alike, pertaining to phenomena of any kind: "We remark among phenomena three categories of elements." (1.418) Despite this mathematical-sounding introduction, Peirce proceeds, as so often in phenomenology, not by mathematical proof or analogy, but by examplifying the three categories in real-world phenomena, Fistness primarily by sense-qualities, Secondnesses by facts and resistance, Thirdnesses by laws and thoughts - that is, he takes his beginnings materially rather than formally, in the material offered from ordinary experience and special sciences rather than from formal structures offered by mathematics from above. As to facts, e.g., he gives a long "promiscuous list of properties of fact" in order to be able to connect facts to "duality" by means of comparison (1.440).

The formal, mathematically informed description of the categories - as monads, dyads, triads - rather appears as the *end* result of this investigation, forming, as it were, an example of abstracting phenomenological structure from below and only in the next step attempting to connect them to mathematical principles from above. For the same reason, Peirce emphatically distinguishes it from pure mathematics: "It is not a mathematical inquiry; because the business of the mathematician is to frame an arbitrary hypothesis, which must be perfectly distinct at the outset, so far, at least, as concerns those features of it upon which mathematical

reasoning can turn, and then to deduce from this hypothesis such necessary consequences as can be drawn by diagrammatical reasoning. The present problem is one of logical analysis." (1.443)

Six years later, finally, in the first ch. of the *Minute Logic*, the issue of the categories still seems to be firmly logical, but the third chapter introduces the standard notion of Phenomenology as autonomous. This beginning is developed further in 1903, in the Pragmatism and Lowell lectures, the *Syllabus*, and the last Monist paper series.

The methods and findings of Phenomenology

In order to get a more detailed picture of the methods of Phenomenology, let us survey what Peirce actually *does* in addition to the standard claims of describing the given, aided, if at all, only by mathematics. In the Pragmatism Lectures, the standard position is presented as follows: "... what we have to do, as students of phenomenology, is simply to open our mental eyes and look well at the phenomenon and say what are the characteristics that are never wanting in it, whether that phenomenon be something that outward experience forces upon our attention, or whether it be the wildest of dreams, or whether it be the most abstract and general of the conclusions of science." ("On Phenomenology", 1903, EPII 147)

Already here, however, we find the idea that there should be considerably *more* to be found in Phenomenology than the three Categories: "I find that there are at least two distinct orders of categories, which I call the particular and the universal. The particular categories form a series, or set of series, only one of each series being present, or at least predominant in any one phenomenon. The universal categories, on the other hand, belog to every phenomenon, one being perhaps more prominent in one aspect of that phenomenon than another but all of them belonging to every phenomenon." (EPII 148) Peirce gets this idea from Kant's 3x4 table of categories, taking the four categories to be universal and present in all phenomena while the three categories rather describes different realms of being.[5] This ambitious idea is developed further in the *Syllabus*: "Phenomenology studies the Categories in their forms of Firstness. It ought to be followed by a science which should study them in a general way as they present themselves throughout common experience. This seems to be approximately though not exactly, what Hegel intended in his *Encyclopädie*. This study may be termed, in advance of any serious undertaking of it, *Encyclopedeutics*. Then, and only then, should succeed the Normative Sciences."

[5] Peirce says that Kant's four general categories, Quantity, Quality, Relation, and Modality are universal because assumed present in all phenomena - while the tripartite subsections of each of them (Unity, Plurality, Totality; Reality, Negation, Limitation; Inherence, Causation, Reaction; Possibility, Necessity, Actuality, respectively) are particular because not present in all phenomena (EPII, 148). This gives him the idea of a similar partition of his own Categories.

(*Syllabus*, 1903, EPII 272). This ambitious idea that Phenomenology should contain two branches - one about the three categories taken *in nuce*, and one about the categories as they appear in the vast, encyclopedic array of different fields of human endeavors, make it understandable why Peirce very often - already in "A Guess at the Riddle" - argues from examples. Some manuscripts - e.g. Ms. 1135 " A Classification of Ideas and Words", 1897 - seem to be aborted attempts at the encyclopaedic part of Phenomenology. This, then, provides another source for Phenomenology than either Mathematics, Logic or Phenomenology: the empirical variety, which is, of course, what we really meet at a first glance when we attempt to describe the Phaneron.

This idea is connected to the methodological idea developed by Peirce from 1903-05 that there are *two* steps in the investigation of the Phaneron, a formal and a material, or, an a priori and an a posteriori step: "The principles and analogies of Phenomenology enable us to describe, in a distant way, what the divisions of triadic relations must be. But unil we have met with the different kinds a posteriori, and have in that way been led to recognizer their importance, the a priori description means little; - not nothing at all, but little." (*Syllabus*, 1903; EPII 289) Still, Peirce thinks that the a priori description should come, also sequentially, first: "Having thus settled what the Phaneron is, we have to undertake the examination [of] its indecomposable constituents. But before undertaking the actual work of observation, it is indispensable that we should begin by considering what is possible. For otherwise we would be exploring without any definite field to explore. We should idly wander without accomplishing anything. The preliminary examination of the possibilities, on the other hand, will furnish us with definite questions to answer." ("The Basis of Pragmaticism", 1905, Ms. 284, 39) The first, a priori step, is informed by Peirce's logic of relations: "Among the preliminary questions the first (which is only rendered necessary on account of our [stating?] of medads, monads, dyads, etc.) will be, Can a posable element of this phaneron be a medad? The answer must be, no. For a medad is a proposition, and a proposition essentially contains two elements, its subject and predicate. This is true even of the simple proposition 'It rains', that is, the environment is rainy./ After this come a series of questions as to whether the indecomposable element can be a monad, a dyad, a triad, a tetrad, etc." (ibid.) This argumentation is given in a bit more detailed fashion in "The Basis of Pragmaticism in Phaneroscopy" (1905, EPII 360) where the role of the a priori part is considerably upgraded: "I invite the reader to join me in a little survey of the Phaneron (which will be sufficiently identical for him and for me) in order to discover what different forms of undecomposable elements it contains. This so will be a work of observation. But in order that a work of observation should bring in any considerable harvest, there must always be a preparation of thought, a consideration as definite as may be, of what it is possible that observation should disclose. That is a principle familiar to every observer. Even if one is destined to be quite surprised, the preparation will be of mighty aid." (EPII 362). Interestingly, the assumedly a priori investigation

immediately goes into arguing from analogy, as already hinted at in the *Syllabus* - this time an analogy not with logic but with *chemistry*. Peirce, of course, was a chemist by training, and it is well-known how his logic of relations was originally inspired by the notion of the different valencies of the elements which, in Peirce's time, gave rise to Mendeleyev's table of elements. His argument goes as follows: "A doubt may, however, arise whether any distinction of form is possible among indecomposable elements. But since a possibility is proved as soon as a single actual instance is forund, it will suffice to remark that although the chemical atoms were until quite recently conceived to be, each of them, quite indecomposable and homogeneous, yet they have for half a century been known to differ from one another, not indeed in internal form, but in external form. Carbon, for example is a tetrad, combining only in the form  (marsh gas), that is, with four bonds with monads (such as is H) or their equivalent; boron is a triad, forming by the action of magnesium on boracic anhydride,  and never combining with any other valency; glucinum is a dyad, forming Cl G Cl, as the vapor-density of this salt, corroborated by many other tests, conclusively shows, and it too always has the same valency; lithium forms LH and LI and L_3N, and is invariably a monad; and finally helion, neon, argon, crypton, and xenon are medads not entering into atomic combination at all. We conclude, then, that there is a fair antecedent reason to suspect that that the phaneron's indecomposable elements may likewise have analogous differences of external form. Should we find this possibility to be actualized, it will, beyond all dispute, furnish us with by far the most important of all divisions of such elements." (EPII 363) This introduction of material from a (much) lower-order science by analogy immediately gives Peirce principle headaches - in a long ensuing paragraph he appeals to the reader *not* to assume he here makes "reasoning by analogy" for that would be "demilunatic stuff" (ibid.) - concluding: "But though I do not offer such a crude argument, it is certainly true that all physical science involves (I do not say, depends upon) the postulate of a resemblance between nature's law and what it is natural for a man to think, and moreover, the success of science, affords overwhelming proff that that postulate is true; and consequently, sound logic does distinctly recommend that the hypothesis of the indecomposable elements of the Phaneron being in their general constitution like the chemical atoms be taken up as a hypothesis with a view to its being subjected to the test of an inductive inquiry. " (ibid.) The argument from analogy between chemistry and logic is explicitly rejected - but immediately the connection found is supported by the general claim of a much stronger analogy, that between natural laws and human thought propensities. Actually, what returns here in a new guise is a general, naturalized version of the old Kantian logic-metaphysics connection, now granting the right to argue from chemistry in the a priori investigation of Phenomenology. It is remarkable that Peirce,

in the brackets, underline that he does not claim that the relation is one of *dependence* - that would violate the hierarchy of the sciences.

The next argument, however, is decidedly a priori. It presents two unacceptable pictures of the Phaneron - one in which it consists entirely of uncombined elements and one in which it consists of one intrinsic, unanalyzable whole. In the former case, we would be unable to form any idea of the Phaneron at all - in the latter case, we would be unable to have any compound experiences such as those of propositions (interrogations and judgments are offered as examples). The assumption, then, is that we actually *have* access to something like the Phaneron, and, again, the argument from logic that we do have access to propositions. From these premises, Peirce argues that the idea of combination must be part of the Phaneron - and that it must, itself, be indecomposable (for if it was composed of other things, it would, in itself, be a result of combination). Having thus proved the existence of combination - Thirdness - Peirce proceeds to derive Secondness and Firstness from Thirdness, using the principle that anything involved in a part of the Phaneron must, itself, be part of it as well - a version of the Nota Notae principle. And as Secondness and Firstness are involved in Thirdness, they too are indecomposable elements of the Phaneron.[6] This, then gives rise to a long argument against the indecomposability of Fourthness, that is, for the Reduction Thesis. Peirce first presents an argument ad oculus - with a number of Monads, Dyads, Tetrads, Pentads, Hexads etc. constructed out of Triads - a sort of intuitive lattice theory (EPII 364). Here, at last, a mathematical argument is given for the the basic structure of Phenomenology.[7] Then he presents an argument that a Tetrad organizing its four elements is really

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[6] Thus, Secondness, and, in turn, Firstness, are derived from Thirdness. This corresponds to the general analysis of the relation between the three in terms of genericity, already developed in "A Guess at the Riddle". The idea is taken from the geometry of conic sections where generic such sections comprise ellipses and hyperbolas while less generic - degenerate - cases comprise parabolas, circles, crossing lines and a point where some of the variables are fixed or vanish. Analogously, Secondness and Firstness are but degenerate forms of Thirdness. In "The Basis of Pragmaticism in the Normative Sciences" not much later (early 1906), this idea is taken as a general principle in phaneroscopic analysis: "The same phenomenon presents itself in the realm of phaneroscopy to such an extent that the only succcessful way of analyzeing any of the concepts which belong peculiarly to this realm is not to begin by considering that concept in all its breadth, but rather to confine oneself, at first, to its highly characterized form, and when that has been thoroughly comprehended, to inquire by what modifications the bordering forms attach themselves to it. But this rule must not be understood as conflicting with the plan of examining the highest and most general concept first. However, until special instances are before us, abstract descriptions can hardly be understood." (EPII, 390). The latter conclusion may also give us a hint why examplification taken from "lower" sciences remains a steady practice in Peirce's phaneroscopic investigations.

[7] Bellucci, in this volume, gives a strong argument that the singling out of Phenomenology as the study of the categories is motivated in taking the most formal part of logic - the logic of relatives - as the phenomenological realization of mathematical structure.

proceeding by means of triadic combinations (EPII 365), and finally, again, he resorts to a chemical argument for triadic reduction: "But those who do not see the force of this reason had better try to build up a chemical triad, that is, a connected group with three free bonds, out of chemical dyads, while observing the law of valency." (EPII 366). Only after this a priori investigation establishing monads, dyads, and triads as the indecomposable elements of the Phaneron, Peirce turns to the *actual* observation of the Phaneron which plays center stage in most general claims about Phenomenology. This observation immediately is involved with material examples from perception (color), linguistics (word sounds), action (opening a door), etc.

Thus, in Peirce's own argumentations for the contents of the Phaneron as the result of phenomenological investigation is considerably more plural than the austere picture of Phaneron observation aided by mathematics which the classification of Sciences may indicate. Analogy arguments to lower sciences, chemistry and logic, comes in even already at the supposedly a priori part of the investigation, and the observational part - as already prefigured in "A Guess at the Riddle" - clothes the categories in material stuff taken from special sciences and everyday experiences. Except for the unfulfilled wishes for a longer series of particular, encyclopaedic categories, the inventory of Phenomenology remains restricted to the naked system of the three well-known categories. Its reliance upon mathematics seems restricted to a spontaneous lattice theory, and mathematical formalization and references are sparse. In that sense, being the second-most general science, the subject matter of Phenomenology remains curiously restricted - the three formal categories coming out of the logic of relations - as compared to the enormous, manifold and detailed subject matters of mathematics or of logic on each side of it in the Classification of the Sciences. We may imagine, of course, that the yet undeveloped encyclopaedic part of Phenomenology might make use of far more mathematical tools.

Of course, the well-known centrality of the three categories in Peirce's system and their generality makes their description no small task. It seems as if Phenomenology arises by a partition of the broad notion of logic, so that categories, hypostatically abstracted, are simply lifted out of logic (and their realist interpretation in metaphysics) to receive their own discipline. The motivation may have been its proximity to (a very small part of) mathematics and Peirce's growing realization, most lately through the work with classification of the sciences, of the ubiquity of triadic distinctions, which made him realize their special a priori status. Still, it seems a bit strange with a whole discipline, the nextmost general of all, inheriting only a very tiny subset of the formalisms offered by its one superior discipline, mathematics. In detailed descriptions of the categories - e.g. "A Guess at the Riddle" or the 1896 paper mentioned - Peirce's actual investigation process seemes to be a much more liberal back-and-forth activity between examinating concrete examples from lower sciences, abstracting and generalizing them - not unlike Husserlian *Wesenschau* - and

making them fit parts of mathematical number structure from arithmetic and set theory. Simply "examinating the phaneron" may sound as if it were an autonomous process supported by Phenomenology's own principles only - bracketing their origin in the formal parts of logic. But Peirce's own investigation practices when constructing his Phenomenology gives a much more manysided investigation pattern, revealing dependencies in a broader sense than the ontological dependences of the classification of the sciences. With respect to logic, in particular, Phenomenology seems to stand in continuous interaction with it, abstracting central principles from it which, in turn, appear as legislating their appearance in logic as well as lower sciences in Peirce's classification.

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