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Umberception and Econicity

Umberto Eco's "Kant and the Platypus" rehabilitates iconicity and calls for a schematic turn in semiotics. The book contains a host of fertile ideas, but to take further the schematic turn, a more thorough reflection on abstract schemata is necessary.

The history of resistance to iconicity in semiotics - and in the sciences in general - is a long and complicated epic. In linguistics and phenomenology, two traditions closely related to the history of semiotics, the anti-psychologism necessary for the very birth of these two traditions as autonomous disciplines (in, for instance, Hjelmslev and Husserl) implied the refusal of any attempt to account for semantic content by means of psychological representations. This crucial idea has been central for the idea of semiotics as a discipline, supported by the equally strong anti-psychologism in Peirce's increaslingly influential semiotics. The interesting and often overlooked fact is that this foundational and necessary antipsychologism has imbued semiotics with an anti-iconic tendency throughout most of the 20. century, in so far as iconicity very often has been spontaneously identified with psychological imagery. The surrounding scientific climate, moreover, served to underline this tendency: in the philosophy of mathematics, in philosophy of science (logical positivism, for instance), in quantum theory, and many other scientific currents, the abolition of iconical intuition of the object became conceived of as a necessary prerequisite for thought to become scientific. Mathematics form a - if not *the* - particularly strong case of anti-iconism stemming from Hilbert's formalism (in turn originating in Moritz Pasch's scepticism of intuition). In mathematics, the strong lesson to be learnt was the appearance of non-Euclidean geometries in the 19. century which made clear that the Euclidean formalism could be interpreted in different intuitive representations, giving rise to different and autonomous geometries. One and the same formal expression might, in different geometries, assume widely differing geometrical interpretations (what is a straight line in Euclidean geometry, e.g., becomes a great circle in elliptical geometry) - so the traditional idea of Euclidean geometry as the structure of empirical space rested on spontaneous and theoretically unmotivated assumptions of intuition. Consequently, intuition was but a hindrance to science, and the purely symbolic, algebraic statement of a theory with no reference to intuition (or

the accompaniment of icons at best seen as a secondary, heuristic aid to understanding) became a scientific ideal during the latter half of the 19th century. With Hilbert, this idea received an explicit treatment, limiting intuition's role to its barest minimum, the manipulation of symbol tokens on a line, all other intuition of mathematics' content being bracketed.

In the semio-structuralism (as Eco calls it) of the 60's and 70's, anti-iconism received a new and additional type of support. Here, iconical representations were seen as fallacious for further, ideological reasons: from a more or less explicit Marxist viewpoint, they were seen as an ideological surface, hiding their own production in a deeper and ontologicaly more prominent symbolic substructure. Thus, semiotics' anti-iconism with its roots in anti-psychologism took part in a strange wedding with Marxist critique of bourgeois ideology: the idea that a sign might in some respects be similar to its object was seen as a mere superficial production of "reality effect" made possible by arbitrary social conventions. Thus, the role of similarity is ideological: it makes natural what is really at bottom conventional. Strangely enough, this thoroughgoing semiotic conventionalism went hand in hand with the 60s reinterpretation of Saussure's - psychological! - version of linguistic structuralism, so that anti-iconism's roots in anti-psychologism were forgotten and replaced with a conventionalism teaching that all signs were due to "codes" having the character of social conventions and instantiated in the single language user's psychology. The whole critical impetus hopefully connected to this structuralism was concentrated in its resistance to iconicity interpreted as a resistance to ideology (to "imaginarity", to "Western metaphysics", to "effects of reality", etc.). Despite currents of dissent (Lévi-Strauss' insistence on motivation in signs or Lyotard's on iconism ("figure")), this particular brand of anti-iconism was a commonplace of most variants of 60's structuralism (Greimas, Barthes, Lacan) as well as so-called poststructuralism (Derrida, Deleuze, Foucault).

This twisted and complicated thread in the historiography of semiotics forms a indispensable prerequisite to Umberto Eco's recent book "Kant and the Platypus" in so far as Eco himself played one of the main characters in the anti-iconic semiotics of the 60's and 70's and in  the "debate of iconism" taking place during the period. The main tenet of the book is precisely the integration of a whole series of issues left out of consideration alongside with iconicity in Eco's early work: reference, cognition, truth, prelinguistic perception - rather serious and far-reaching questions, it must be admitted. Eco's position in "La struttura assente" (1968)  and its reworked English version "Theory of Semiotics" (1976) was anti-iconic even to extremes like not admitting any similarity whatever between an object and its contour, and the resulting theory suffered from including a whole series of very diverse anti-iconic arguments, often contradicting each other. In the present book's last chapter, Eco recounts an outline of his and his

compatriots' position at the time, and I think it is fair to say that he to some extent misrepresents the scope and the radicality of the anti-iconism of the period, probabaly out of the same embarrasment that makes him characterize conversions from this semio-structuralism and to Peircean iconicity in some of his fellow-travellers as the result of confessions in a Stalinist show trial (341). This somewhat shrill description should probably be read as a testimony of the malaise inherent in the revision of one's own viewpoints, for it is, in fact, exactly the same conversion that is Eco's own purpose with this book: the admirable task of revising his 1976 position on iconicity[i]. It is evident, furthermore, that a strong influence in this revision is what must be counted as one of the major developments in the semiotics of the turn of the millenium: the American "cognitive semantics" tradition (involving Rosch, Lakoff, Johnson, Turner, Sweetser, Talmy, Fauconnier, etc.). Even if only rarely using the term "semiotics", this tradition has strongly vitalized the development of a bouquet of core semiotics issues (general semantics and its relation to perception, to thought, to biology, etc.) by connecting them to the general cognitive science project. Early on, Eco was one of the European contacts to this tradition, and he has done much to introduce it in Europe. Thus, the present volume can also be read as his contribution to this devlopment, involving a welcome revision of his own earlier viewpoints.

Even if this self-criticism gives rise to a whole series of really interesting ideas, the book is explicitly not intended as a systematic rejoinder to the intended systematical "Theory of Semiotics" of the book thus titled. The six essays in "Kant and the Platypus" come in seemingly arbitrary order and with sparse internal references, even if they circle around the same central set of issues. The first is a general (ontological, in fact) meditation on being as a positive issue - in contradistinction to semio-structuralism's preference for negative determinations and its resulting hesitations towards any ontological claims - and it concludes with a discussion of structural semiotics' occupation with an amorphous continuum of being to be segmented by semiotic systems. The fact that this continuum possesses a "grain", contains "lines of resistance" as given before semiosis and to some extent governing it, is the anti-conventionalist point of the still rather weak ontology (references to Vattimo are weak but not missing, consequently) of this chapter. The second essay tackles the main problem head on: the explanation of the semantics of everyday empirical concepts (like "dog", or, more conspicuously, "platypus") cannot do without the (iconic) notion of "schema" like in Kant's epistemology. The ideas from this chapter is taken further in the third essay where the Kantian impetus is reinterpreted in the light of actual cognitive science. Here, Eco constructs his own theory of the semantics of empirical concepts: they build on t prelinguistic perceptual generalisation (in Peirce's terminology: perceptual judgment) giving rise to

"cognitive types" (CT) making recognition and identification of a phenomenon possible. This stability in perception seems to form the kernel of semantic content of the concept, the so-called "nuclear content" (NC) involving a fuzzy spectrum of core knowledge attached to the CT. Finally, following Putnam's idea of a linguistic division of labor, various expert bodies of knowledge about the phenomenon in question may be elaborated with the NC as point of departure (and possibly contradicting it); they form elaborated corpuses of "molar content" (MC). In the platypus example, the CT will be the perceptual type of the animal, making recogntion of it possible; the NC will be central pieces of knowledge about it (it has a beak, lays eggs, gives milk, etc.); and the MC will involve different sets of elaborated representations of it (the aboriginals' mythological ideas of the animal's role in cosmology, the scientific description and classification of it, etc.) - the latter possibly being subject to ongoing discussions and negotative reinterpretations. The fourth chapter recounts the polemic around the classification of the platypus raging in biology during most of the 19th century and draws some general conclusions as to the indispensability of both of Eco's well-known semantic description types of dictionary vs. encyclopedia in the forming of empirical concepts, permitting the revision and the integration into the new CT/NC/MC terminology of these two terms. The fifth essay turns towards the question of reference and takes up Kripke's famous "ontological" theory of reference: the idea of proper nouns as rigid designators devoid of any descriptive value whatsoever. Kripke's theory is relativized to become a regulative idea only in a more pragmatic theory of reference as subject to the same ongoing contractual negotiation between language users as content is subjected to. The final essay on iconism and hypoicons is somewhat disappointing in relation to the strong chapters in the middle of the book; we do not get the integration of the book's insights in a broader theory of iconicity, such as might be expected from its title. Still, the essay contains a interesting distinction between two forms of icons, *alpha*- and *beta*-, respectively, so that the *alpha* signs are perceived as signs irrespectively of any explicit intention of sign reading in the receiver (the dog seen as "a dog", supposedly), while the *beta* signs presumes to be read as expressions of a sign function (the expression "a dog" heard as a sign for the content DOG, supposedly, or the dog seen as a sign for a nearby kennel); this distinction apparently gives rise to the distinctions between primary and secondary icons equivalent to the distinction between "perception surrogates" and more proper signs.

It is difficult to present - not to speak about evaluating - a book so explicitly multiple as the present volume. In the following, I shall discuss some of the main issues of the central four chapters a little closer. Let us begin by the reintroduction of iconicity in a central role (and I should not hide that I

perfectly agree with Eco on that central point). The question leading to the recognition of iconicity in Eco is: "How do we assign names to things?" The scholastic (by essences) and the empirist (by complexes of ideas) answers are both refuted at the expense of the Kantian notion of schema. The schema is a *type* and hence no mere association of ideas (which would be impossible for the strong reason that empirical objects have an infinity of properties (Kant)), but it is on the other hand a result of construction and is thus no pregiven essence ready to be picked up.  Eco runs through the Kantian doctrine of the reflective judgment in "Kritik der Urteilskraft" in order to underline the schema's constructed character: the reflective judgment seeks to constitute a general concept to subsume a particular phenomenon (and it is in so far a precursor to Peirce's notion of abduction), and in so doing, it conceives of the thing *as if* it was a part of something general. In order to do so, furthermore, it conceives of the thing *as if* it was teleologically organized. In short, one could sum up, it conceives of the thing as if it was an animal. René Thom's idea of the semantics of the substantive as a generalized animal here receives an indirect support. It is a pity that the consequence of this theory are not more thoroughly discussed - does this ascription of generality and organic teleology precede categorization *as such*? If so, is it not a necessary corollary that animal species categories are prototypical categories, that other empirical concepts receive their (deceptive?) natural-kind character from this implicit biology of meaning? (No wonder, if this be the case, that philosophers always chose animals when talking about natural kinds, from Kant's dog over "the cat is on the mat" and to Eco's own platypus ...). In any case, this teleological and generalizing feature of reflective judgment commits it to proceed by trial-and-error - that is, in a construction of a schema which will be able to subsume the phenomenon in question. In so far, the schema becomes the general type which permits the recognition of tokens of it. This is explicitly posed as a general prerequisite of signs: before anything can stand for something else (Stoic sign definition), a type must be able to stand for at token of itself. This sound theory is nothing new in semiotics; it is central in Peirce but it also is inherent in e.g. Hjelmslev's version of "semiostructuralism" - but still it is good to emphasize it as against the widespread and fateful superstition that signs begin with referring to something else. This primary iconicity is taken as a primitive: it *defines* similarity rather than the opposite way around. Primary iconicity thus satisfies Eco's old ambition of finding the "lower threshold of semiotics" and is described in several ways: one is the psychological description as the adequate representation of a stimulus by a sensation. The prerequisite for this is a pure "predisposition to correspond" (110). This last description corresponds to Peirce's idea that the icon is at the same time objective and vague, but there is an unnoticed tension between this objective and hence pre-subjective description of iconicity on

the one hand and the just mentioned identification of iconicity with psychological and perceptual processes on the other. A mild conclusion here could be that this difference is not further elaborated in this book where the focus on the genesis of empirical concepts implies a natural bias towards psychology; a stronger conclusion could be that there is a problem in the fact that Eco's reintroduction of iconicity is so tightly intertwined with a reintroduction of psychological terms (which moreover is strange, because Eco in general takes the prudent stance of seeing the mind as a black box which he, as a semiotician, abstains from peeping into). I shall return to this problem.

　　The schema thus satisfies the Husserlian requirement that there should be strong ties between linguistic and perceptual meaning. As is evident, this rendering of schema and iconicity puts a heavy burden on perception. Peirce's theory of perception - to which Eco returns over and over without tackling it head-on - is taken as the means to fill this gap: the relation between percept ( a limit case with no autonomous existence in Peirce's account) and the consecutive perceptual judgment is taken as a general description of the token-type relation in primary iconism.

　　This is taken up in the third essay where Eco outlines the most elaborated and original consequences of his iconic turn. His introductory remarks are as spoken out of my mouth, and as I believe Eco has considerably more listeners, I am happy they are spoken out loud. The schema is an unsolved problem for truthfunctional semantics on the one hand just as it is for structural semiotics on the other, and the flora of schema-like concepts flowering in the cognitive semantics tradition these years (schema, prototype, stereotype, model, pattern ...) testifies to the indispensability of schematic concepts. In so far, a schematic turn can be said to be underway, but, as Eco points out, without its proponents knowing much about the philosophical debts nor depths in the concept. The main problem, according to Eco (here I only partially agree)- in continuation with the preceding chapter - is that Kant's schematism does not account for empirical concepts (the dog, the platypus, etc.). Accordingly, he takes up the development process of such concepts, Montezuma's and the Aztecs' gradually forming a sort of horse concept after the first meetings with the Spaniards and the polemic over the zoological classification of the platypus being his two main examples. In accordance with the central role accorded to perception, he supposes that the first stable structure formed is a "cognitive type" (nicknamed CT) which is a perceptual schema, integrating a multimedial range of senses (including for instance the horse's general outline, its smell etc.). The CT, even if subject to ongoing trial-and-error negotiations, has the property of being a perceptual type, hence prelinguistic, and hence safe from all semiotic doubt, cultural relativism, etc. True, different cultures will form different CT's but they will still be

constrained by certain "lines of resistance" as it was called in Eco's ontology. Its main function is to facilitate the recognition of yet-unseen tokens of its type. The important step here is that Eco succombs to Peirce's insistence that the generality of the symbol is not the only generality in semiotics; it is preceded by - and conditioned by - typicality, the fact that phenomena tokens are organised from types before symbolicity and linguistic categorization further organize them. However, the CT is, due to its perceptual status, private, so how do we guarantee that a CT is in fact present? - only by the intersubjectively controllable detour of succesful referring. If speakers pragmatically agree in referring to a phenomenon this must count as a proof of shared (or, in any case, sufficiently similar) CTs. This brings the next term in play, Eco's concept for the meaning (or better, the content) of empirical terms, the Nuclear Content (nickname: NC). It is defined as a set of public interpretants of a CT (and must be supposed to feed back onto the ongoing shaping of the CT) and becomes the possibility of the attaching of a substantive expression making the content communicable. The relation between CT and NC is conceived so that CT acts as disposition for the formation of a NC, while the presence of a NC, conversely, is the proof of the existence of a CT. (There are problems in this claim: everyday substantives abound which have NC but hardly CTs - for instance "furniture" - but this may probably be mended by a suitable theory of abstraction). The NC gives instructions for the identification of tokens of the type (its so to speak iconic side) as well as instructions for retrieval of tokens of the type (its so to speak indexical side). So it adds a considerable amount of knowledge to the perceptual CT of for instance a horse: where do we find horses, to what use are they typically put etc. The NC is still a common-sense-close notion, being subject to continuous negotiation and not necessarily internally consistent. The "molar content" (MC) forms the third concept of this triad and constitutes some stable corpus of complex knowledge of the object (it contains more than is demanded for perceptual recognition) and is typically parcelled out in different, sophisticated practical and theoretical discourses on the object, also subject to continuous negotiation in smaller subcultures but with strong consistency constraints added. In this analysis, the very concept of "concept" is left to unemployment, in so far as everyday empirical concepts are CTs, expressed by NCs, while scientific and other special language concepts are defined by various MCs. It is evident that Eco's CTs-NCs display  close relationship to Eleanor Rosch's "basic-level-categories": he is happy to state that they are interpretable even if primitives - and on the Kantian hand he maintains they act as general pictures acting as rules for the construction of specific pictures.

The more precise definition and description of CTs takes up many efforts. CTs seem also to include qualia, basic acts (walking, jumping), basic

opposition pairs (husband/wife), frames governing events, they must contain Gibsonian "affordances" (what may be done with the phenomenon in question), they include face recognition, recognition of musical styles, fictive persons and artworks; we often use truncated CTs completely separated from NCs. One and the same CT may emphasize iconic, propositional and narrative meanings. CTs governing empirical concepts are juxtaposed "cultural" concepts including abstract concepts, cultural relations, events, etc. CTs are compared to cognitive semantics concepts like stereotype and prototype and it is proposed that CTs have maximum extension and minimum intension, while the opposite is the case for prototypes.

These sketchy extrapolations of the CT concept display some weaknesses. First, CTs now seem to include a whole series of semantic phenomena traditionally seen as farther from perception: frames, opposition pairs, functional properties etc. The fact that phenomena like these in fact do form Cognitive Types leaves little doubt; but the idea that they spring almost automatically from perception seems a lot weaker in these more conceptual cases. The basic tie between CT and perception thus seems to be loosened without it being explained how CTs are formed of these traditionally more "conceptual" content types. Moreover, the opposition between empirical CTs and cultural CTs seems very hard to uphold on the proposed basis which makes the latter farther removed from perception than the former: a very wide range of cultural objects (from Coca Cola bottles to saints) are recognized by means of simple perceptual schemata, while on the other hand it is a very doubtful claim that abstract concepts should in general be cultural specific through and through. As to the alleged opposition between CTs and prototypes, the idea that CTs should have minimum intension fits badly with the earlier claim that they include multimedial representations for object recognition (including smells, sounds, etc.).

While the basic layout of the CT/NC/MC theory thus seems a very promising idea, its elaboration suffers from serious lacks, supposedly because of their ties to (too) simple concepts of empirical phenomena, psychology, and culture inhibits their extrapolation. It is almost as if Peirce's much-quoted (also by Eco) remark - that if Kant had taken the consequenses inherent in his schematism, it would have overgrown his whole work - has a bearing on Eco's reflections as well.

The fourth essay recounts the platypus strife of the 19th century with the aim of reconciling the CT/NC/MC theory with Eco's earlier discussions of dictionary vs. encyclopaedia semantics, the former being characterized by hierarchical organization, linguistic determination, a limited inventory of semantic features, proceeding by definition (corresponding to structuralist analyses of meaning), the latter being characterized by an uncoordinated an

indefinite mass of extralinguistic knowledge, proceeding by classification (corresponding to an empirist, everyday conception of meaning). In relation to the NC/MC distinction, a first glance might suggest that NC/MC correspond to Encyclopaedia/Dictionary, respectively (by the common feature unordered/ordered), but in the opposite direction points the fact that NCs are supposed to be simpler than MCs, and a precise correlation between the two is given up. Eco after long deliberation places "wild" categorization in NC while systematic categorization belongs to the MCs. Dictionary semantics is characterized - in both MC and NC - by limiting itself to register that a concept is located on a certain node in a classificatory tree, while encylcopaedic knowledge includes both locations of concepts in classifications as well as their further content. The conclusion by the platypus example is that an interaction between dictionary and encyclopaedia knowledge is necessary in the ongoing negotiation leading to from wild to less wild classification; it takes its point of departure in one and the same CT/NC which is impossible to doubt as a whole (the existence of such a strange creature as the platypus is beyond doubt, even if single properties (its laying eggs, its giving milk, etc.) may be doubted), while the interpretation of this kernel in terms of MC is highly variable and subject to possible systematical doubt (is the platypus bird, mammal, reptile, etc. ...) giving possibility for scientific progress.

A further possibility of development in this chapter is to elaborate on the distinction between CTs and NCs, prelinguistic categories and linguistic categories, respectively. Rita Nolan has in a strong paper proposed that the distinction between perceptual and conceptual categories shall be drawn according to whether the category is contrasted to other categories[ii]. This would point to the idea that the role of CTs - perceptual categories - is to facilitate identification (as a type), while the role of the NCs developed out of them is to facilitate classification. Identification and classification have much too often been identified in semiotics, but an extrapolation of Eco's proposal may lead to a theory where the latter is seen as a more complicated process presupposing the former[iii].

The fifth essay on reference is one of the book's best and takes the negotiation-semantics-idea from the field of icon and content to the field of index and reference. Kripke's well-known rigid-designator theory of proper names and their ontological reference is criticized with an Italian comical sketch as an example. Eco's argument is convincing: a completely naked reference without any descriptive content is only possible as a limit case, and rigid designation must be reinterpreted in a Kantian fashion as a regulative idea governing the ongoing research process rather than being the normal reference relation in ordinary language where pragmatic reference by negotiation is the rule: "When people listen to acts of reference, they usually ask lots of questions".

All in all, the book contains a huge amount of valuable suggestions. The reintroduction of primary iconism is nothing less than a semiotic necessity, and the discussion of Kant's schematism is highly relevant for the development of a semiotics between truthfunctional reduction of meaning on the one hand and various irrationalist claims of the ineffability of meaning on the other. The CT/NV/MC theory is a valuable outline for a theory of content between abstract concepts on the one hand and the multiplicity of perception on the other, and the negotiation theory of reference continues the valuable insight in Kripke reference theory in a pragmatic setting[iv]. Still, the lack of systematic disposition and conclusions in the book is highly regrettable. It contributes to the list of unanswered questions and problems in the position it puts forward. Let me name a few.

First of all, the delimitation of iconicity and schemata to empirical concepts with a tight connection to the psychology of perception is very hard to understand. Of course, the understanding of empirical concepts is a spectacular problem, but if we should avoid the pitfalls of empiricism and psychologism making their re-entry in semiotics alongside the reintroduction of iconicity, it is crucial to see the problem of empirical concepts in a close relation to abstract concepts - just like it is the case already in Kant where schemata are seen to account for empirical concepts as well as a priori concepts. This idea in Kant is continued in Peirce's theory of diagrams[v] where we learn that empirical concepts are schematic only insofar as they are built from pure diagrams invested with empirical constraints and references. This implies that Eco's account for schemata overlooks the crucial connection between observation and generality in schemata (Peirce's version of Kant's synthetic a priori). In diagrams, it is possible directly to observe generality, Peirce claims; Husserl had an analogous insight in his theory of categorial intuition in the 6th of the *Logische Untersuchungen* where he claims that in order for categories to be understood there must exist a kind of perception allowing us to grasp them. It is the observability of general, "abstract" properties which is the crux of schemata. This is, in fact, the really new insight in Peirce's icon concept: the operational definition of the icon (an icon is any sign on which operations may be undertaken in order to reveal more information about its object). Here, all reference to human psychology is bracketed, and the corresponding extension of the icon category makes it cover anything from photos to algebra, from perceptions to graphs, in so far as these signs allow for the crucial operations to be performed, leading to more information about their object. As Eco fails to see this, his reintroduction of iconicity threatens to become the reintroduction of a culturalized variant of (psycho-)logical positivism (without his intention, no doubt) in semiotics. This is evident, when he (253) summarizes the contributions to the determination of the platypus in the following two currents: one body of perceptual observation sentences based

on the intrinsic characteristic of the environment , and, on the other hand, one holist (in a Quinean sense), structural system of propositions which performs a "cultural segmentation of the content" (corresponding to the strange subsumtion of abstract meanings under cultural CTs). Protocol sentences, on the one hand, and on the other the means to organize them, be they logical or psychological of origin - the old pair so well-known from psychological or logical  empiricism - with the one difference that the (psycho-)logical apparatus here is supposed to be culturally variable. It is well known that in all positivist ways of cutting the cake, what is deliberately left out is any reference to the synthetic a priori; no a priori is left but analytical tautologies. This corresponds exactly to the underestimation of the general content of schemata, but it becomes very difficult to see which device should be able to mediate between the cultural concept systems on the one hand and the observation sentences on the other. The whole a priori set of concepts yielding the basic schemata of each of the single special sciences falls away - ironically in a period where analytically minded philosophers reintroduce the synthetical a priori in a major scale (cf. Barry Smith's idea of "fallabilistic apriorism"). Of course, the reason why the cultural reference is included here is in order to answer an important question of fundamental semiotics: how are cultural differences possible - but the answer to this question must not beforehand exclude the answer to an equally important question: how is scientific knowledge possibe?  This disappearance of a priori concepts in Eco's theory is indirectly apparent in the rather generous amount of information supposed to be present in the observation-close CTs. Here, it is for instance a pre-linguistic presupposition that a dog is an animal (in no scientific sense, it is true, but still supposed as a pre-cultural knowledge impossible to delete). But is it really appropriate to describe so complicated information as inherent in perception? - in any case it presupposes a very developed concept of perception. We can easily subscribe to Eco's observation that the idea that dogs are animals is culture- and language-independent - but is this fact not more satisfactorily described when we say that an a priori concept of animal is involved here - one that we might even be able to schematize (as something like a self-propelled metabolism looking for nutrition)?

The admittance of abstract relations as crucial to the construction of schemata would yield a whole series of further consequences: the variation of schemata, the experimentation of schemata, the fallibilistic reinterpretation of a priori schemata, the distinction between the icon and the psychological conditions for the processing of it. Let me conclude with arguing for this further list of steps to be taken in order to complete the schematic turn of semiotics.   There is a crucial variation procedure connected to schemata linking type and tokens, and this goes for empirical and a priori schemata alike. The general picture of the schema must be

varied in order to yield subtypes and tokens of the typical schema. But not all a schemata allows for the same formal kinds of variation nor the same scope of variation procedures. In dogs, e.g. the variation of the type must be rather extensive in order to cover races like Great Dane and Chihuahua, respectively, while the variation allowed in platypuses is much more restricted. In the concepts of animals, continuous variations (within a whole set of further Bauplan constraints) are relevant, while in the concept of chess games, discontinuous variations prevail. A huge subject is suggested by these remarks; suffice it to say that the types and scope of variation thus forms a part of the very concept of schema itself and the specification of the variation's type and scope forms an indispensable part of the content associated with each specific schema.

Eco touches upon this important idea in Gibson's "affordance" concept, the fact that schematic content indicates "what may be done" with the phenomenon in question. In addition to the variation linking type with token, this forms an even more extensive field of schematic research: which rule-bound manipulations may be undertaken on a schema in order to map which corresponding changings may take place in the object it depicts? Peirce's schema concept, that of a diagram, makes explicit this dimension of experimenting or manipulating in every diagram - in the animal schema it will be the manipulation of it to simulate animal behavior; in more abstract schemata - like logical or algebraical expressions - it will be the possibility of proving theorems or solving equations. This property is what makes schemata fit for *Gedankenexperimente* of every kind.

If we apply this experimenter's stance to abstract schemata we may get a crucial corollary as to the notion of a priori. In Kant, the notion covers knowledge which is valid without regard to empirical facts and hence pre-given for the transcendental subject. What diagrams make clear is that these two properties are not in any way synonymous. What is valid regardless of empirical facts is not for this reason self-evident for us (which the history of mathematics should suffice to convince us). This implies that a priori knowledge is exactly as fallibilistic as empirical knowledge, and our access to it takes place via experimentation on schemata. This idea even fits very well into Eco's idea of a negotiation semantics which may easily be enlarged so as to encompass the evolution of abstract knowledge.

Having asserted the central place of abstract relations in schematism, we may propose a distinction between iconism as such (cf. Eco's "disposition to correspond") which needs no human or other psychology to be realised, on the one hand, and the psychological means at human disposal for recognizing iconicity, on the other. The former, iconicity as such, may be studied without reference to the latter. In doing so, semiotics will remain faithful to its anti-psychological and phenomenological foundations. Equipped with these means, semiotics should be able to take further the schematic

turn, which Eco so fruitfully proposes, and to build a semiotics which is iconic and thereby rationalist in the best sense of the word.

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[i]. I have myself offered a rather harsh criticism of the iconicity conception of Eco (1976) in Stjernfelt (1999a) so I am very happy to report that Eco's revision of that book is far better and contains a host of fertile ideas.

[ii].Nolan 1994, p. 230.

[iii]. In a variety of sources, we find indications of such a distinction, for instance Groupe $\mu$'s insistence on the autonomous existence of visual types as distinct from their virtual linguistic denomination (1992), Jakobson's distinction between privative and qualitative oppositions, and Medin and Barsalou's distinction between prototype and boundary classifications, respectively, in categorical perception (1987).

[iv]. Eco's promisign negotiation theory of semantics ought to be compared to Hintikka's game-theoretical semantics.

[v]. Peirce's general theory of diagrams has received (too) little attention; the most detailed account he himself gives is to be found in Peirce (1976); I have attemted a synthetic account in Stjernfelt (forthcoming a).