Theory and History of Ontology (www.ontology.co)      by Raul Corazzon | e-mail: rc@ontology.co

## Definitions of *Ontology*. From Christian Wolff to Edmund Husserl

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### Defining "Ontology"

a) *One of the best available dictionaries gives the following definition of Ontology*:
"1. A science or study of being: specifically, a branch of metaphysics relating to the nature and relations of being; a particular system according to which problems of the nature of being are investigated; first philosophy.
2. a theory concerning the kinds of entities and specifically the kinds of abstract entities that are to be admitted to a language system."

*Webster's Third New International Dictionary*, s.v. "ontology".

b) *The first sense is commonly used in the philosophical tradition:*

"In contemporary philosophy, formal ontology has been developed in two principal ways. The first approach has been to study formal ontology as a part of ontology, and to analyse it using the tools and approach of formal logic: from this point of view formal ontology examines the logical features of predication and of the various theories of universals. The use of the specific paradigm of the set theory applied to predication, moreover, conditions its interpretation."
The second line of development returns to its Husserlian origins and analyses the fundamental categories of object, state of affairs, part, whole, and so forth, as well as the relations between parts and the whole and their laws of dependence - once all material concepts have been replaced by their correlative form concepts relative to the pure 'something'. This kind of analysis does not deal with the problem of the relationship between formal ontology and material ontology." (p. 199)

Liliana Albertazzi, "Formal and Material Ontology" in: Roberto Poli and Peter Simons (eds.), *Formal Ontology*, Dordrecht: Kluwer 1996, pp. 199-232.

c) *The second sense is used in research on Artificial Intelligence and Knowledge Representation; one of the best known definitions is Tom Gruber's:*
"An *ontology* is an explicit specification of a conceptualization.
The term is borrowed from philosophy, where an ontology is a systematic account of Existence. For knowledge-based systems, what "exists" is exactly that which can be represented. When the knowledge of a domain is represented in a declarative formalism, the set of objects that can be represented is called the universe of discourse. This set of objects, and the describable relationships among them, are reflected in the representational *vocabulary* with which a knowledge-based

program represents knowledge. Thus, we can describe the ontology of a program by defining a set of representational terms. In such an ontology, definitions associate the names of entities in the universe of discourse (e.g., classes, relations, functions, or other objects) with human-readable text describing what the names are meant to denote, and formal axioms that constrain the interpretation and well-formed use of these terms." (pp. 199)

Tom Gruber, "A Translation Approach to Portable Ontology Specifications" in: *Knowledge Acquisition*, 5, 1993, pp. 199-220.

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*This definition has been criticized by Guarino and Giaretta that, after examining seven possible interpretations of ontology,* (1) *write:*
"A starting point in this clarification effort will be the careful analysis of the interpretation adopted by Gruber. The main problem with such an interpretation is that it is based on a notion of conceptualization (introduced in: Genesereth, Michael R. and Nilsson, L. "Logical Foundation of Artificial Intelligence" Morgan Kaufmann, Los Altos: California, 1987) which doesn't fit our intuitions, (...): according to Genesereth and Nilsson, a conceptualization is a set of extensional relations describing a particular state of affairs, while the notion we have in mind is an intensional one, namely something like a conceptual grid which we superimpose to various possible state of affairs. We propose in this paper a revised definition of a conceptualization which captures this intensional aspect, while allowing us to give a satisfactory interpretation to Gruber's definition." (p.26)

**Notes**

*The definitions are:*

1.    1. Ontology as a philosophical discipline
2.    2. Ontology as a an informal conceptual system
3.    3. Ontology as a formal semantic account
4.    4. Ontology as a specification of a conceptualization
5.    5. Ontology as a representation of a conceptual system via a logical theory
6.    5.1 characterized by specific formal properties
7.    5.2 characterized only by its specific purposes
8.    6. Ontology as the vocabulary used by a logical theory
9.    7. Ontology as a (meta-level) specification of a logical theory

Nicola Guarino, Pierdaniele Giaretta, "Ontologies and Knowledge Bases. Towards a Terminological Clarification", in: N.J.I. Mars (ed.), *Towards Very Large Knowledge Bases*, Amsterdam: IOS Press 1995, pp. 25-32.

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Guarino gives this definition: "Since this paper is deliberately addressed to an interdisciplinary audience, it is advisable to pay attention to some preliminary terminological clarifications, especially because some crucial terms appear to be used with different senses in different communities (4). Let us first consider the distinction between "Ontology" (with the capital "o"), as in the statement "Ontology is a fascinating discipline" and "ontology" (with the lowercase "o"), as in the expressions "Aristotle's ontology" or "CYC's ontology". The same term has an uncountable reading in the former case, and a countable reading in the latter. While the former reading seems to be reasonably clear (as referring to a particular philosophical discipline), two different senses are assumed by the philosophical community and the Artificial Intelligence community (and, in general, the whole computer science community) for the latter term.
In the philosophical sense, we may refer to an ontology as a particular system of categories accounting for a certain vision of the world. As such, this system does not depend on a particular language: Aristotle's ontology is always the same, independently of the language used to describe it. On the other hand, in its most prevalent use in AI, an ontology refers to an engineering artifact, constituted by a specific vocabulary used to describe a certain reality, plus a set of explicit assumptions regarding the intended meaning of the vocabulary words. This set of assumptions has usually the form of a first-order logical theory (5), where vocabulary words appear as unary or

binary predicate names, respectively called concepts and relations. In the simplest case, an ontology describes a hierarchy of concepts related by subsumption relationships; in more sophisticated cases, suitable axioms are added in order to express other relationships between concepts and to constrain their intended interpretation.

The two readings of ontology described above are indeed related each other, but in order to solve the terminological impasse we need to choose one of them, inventing a new name for the other: we shall adopt the AI reading, using the word conceptualization to refer to the philosophical reading. So two ontologies can be different in the vocabulary used (using English or Italian words, for instance) while sharing the same conceptualization." (p. 4)

### Notes

(4) I elaborate here on some material already published in Guarino, N. and Giaretta, P. 1995. "Ontologies and Knowledge Bases: Towards a Terminological Clarification". In N. Mars (ed.) *Towards Very Large Knowledge Bases: Knowledge Building and Knowledge Sharing 1995*. IOS Press, Amsterdam: 25-32.

(5) In this case, an ontology is sometimes called a formal ontology, although we shall use the expression "formal ontology" only to refer to a philosophical research field.

From: Nicola Guarino "*Formal Ontology and Information Systems*", in: N. Guarino (ed.), *Formal Ontology in Information Systems. Proceedings of the First International Conference, Trento, Italy, 6-8 June 1998* Amsterdam: IOS Press 1998, pp. 3-15.

## Descriptive, formal and formalized ontoloy

"I shall distinguish descriptive, formal and formalized ontology. Each of these ontologies comes in two guises: domain-dependent and domain-independent. Domain-dependent ontologies concern categorically closed regions of being; on the other hand, a domain independent ontology may be properly called general ontology. (...) Descriptive ontology concerns the collection of such prima facie information either in some specific domain of analysis or in general.

Formal ontology distills, filters, codifies and organizes the results of descriptive ontology (in either its local or global setting). According to this interpretation, formal ontology is formal in the sense used by Husserl in his Logical Investigations. Being 'formal' in such a sense therefore means dealing with categories like thing, process, matter, whole, part, and number. These are pure categories that characterize aspects or types of reality and still have nothing to do with the use of any specific formalism.

Formal codification in the strict sense is undertaken at the third level of theory construction: namely that of formalized ontology. The task here is to find the proper formal codification for the constructs descriptively acquired and formally purified in the way just indicated. The level of formalized constructions also relates to evaluation of the adequacy (expressive, computational, cognitive) of the various formalisms, and to the problem of their reciprocal translations.

The close similarity between the terms 'formal' and 'formalized' is somewhat unfortunate. One way to avoid the clash is to use 'categorical' instead of 'formal'.

Most contemporary theory recognizes only two levels of work and often merges the level of the formal categories either with that of descriptive or with that of formalized analysis. As a consequence, the specific relevance of categorical analyses is too often neglected.

The three levels of ontology are different but not separate. In many respects they affect each other. Descriptive findings may bear on formal categories; formalized outcomes may bear on their twin levels, etc. To set out the differences and the connections between the various ontological facets precisely is a most delicate task." (p. 183)

From: Roberto Poli, "Descriptive, Formal and Formalized Ontologies", in: Denis Fisette (ed.), *Husserl's* Logical Investigations *Reconsidered*, Dordrecht: Kluwer 2003, pp. 183-210.

"The idea of a formal ontology arose around the turn of the present century in the work of Edmund Husserl. It coincides in many respects with what is nowadays sometimes called 'analytic

metaphysics' or with attempts to use formal methods to solve classical philosophical problems relating to the notions of being, object, state of affairs, existence, property, relation, universal, particular, substance, accident, part, boundary, measure, causality, and so on. Formal ontology thus includes several sub-disciplines, of which the most developed is the theory of part and whole, as sketched by Husserl in the third of his Logical Investigations and later worked out as a formal theory by Leśniewski. Formal-ontological ideas are present also in much contemporary work on naïve physics and in the formal theories of the common-sense world canvassed by workers in the field of artificial intelligence research.

The idea of a formal ontology is placed in a network of conceptual oppositions: it admits of different senses according to which of its two constituent elements is given priority. If the emphasis is placed on 'ontology' then the principal distinction is between 'formal' and 'material' (that is between 'formal ontology' and 'material ontology'); if instead the emphasis falls on 'formal', the contrast is between 'ontology' and 'logic' ('formal ontology' vs. 'formal logic'). This situation raises some important questions: When one speaks of 'ontology', how can its formal aspects be distinguished from its material ones? When we talk about the 'formal', how can we distinguish between logic and ontology?" (*Foreword by the Editors*, p. VII)

From: Roberto Poli and Peter Simons (eds.), *Formal Ontology*, Dordrecht: Kluwer 1996.

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"One hundred years ago, Edmund Husserl was perhaps the first philosopher to pay any interest to the formal treatment of some of the most fundamental questions of ontology. Powerful tools of logic were developed in those days, and this new development inspired in a natural way various attempts to use these techniques within this prestigious area of philosophical inquiry. Through Husserl's younger colleague, Roman Ingarden, and in the light of related ideas of Leśniewski and other members of Lwow-Warsaw School, these ideas spread rapidly, particularly in the Polish scientific community.

Philosophical inquiries into ontology in an advanced formal setting were put forward first by Stanislaw Leśniewski. Inspired by the contemporary discussion on the foundations of mathematics, Leśniewski was interested in finding a formal framework appropriate for the ontological grounding of both mathematics and logic. The basic system was Mereology, i.e. the general theory of collective sets. Ontology itself arises from Protothetic. All his axiomatic systems came about in an elegant yet somewhat exotic notation. (1) Leśniewski's mereology was intended to play the part of an alternative to set theory. Later -- as an axiomatic 'calculus of individuals' -- it appears to be a proper extension of set theory rather than a competitive calculus. Thomas Mormann's article 'Topological Representations of Mereological Systems' (2) can be seen as a recent example of that line of research. He shows that nothing is lost when a reasonable mereological system is substituted by its topological model. That brings mereology into contact with well developed mathematical theories and may help mereology, as Mormann concludes, "to leave its present state of theoretical immaturity". In any case, mereology can be treated as a contribution to formal ontology only if it carries a meaningful theory of (the construction of) universes. The same holds for (pure) set theory itself, which is sometimes taken to be the most usable and convenient base for any formal ontological system (cf. Quine's discussion of this topic in various places, and for several other approaches see e.g. Poli and Simons (eds.), *Formal Ontology* Dordrecht: Kluwer, 1996; Scheffler and Urchs, "Ontologic. Essays on Formal Ontology", *Logic and Logical Philosophy*, Torun, Copernicus University Press, vol. 2, 1995)." (p. 11)

## Notes

(1) Tadeusz Kotarbinski served as a faithful translator of Leśniewski's rather esoteric writings for the broader public. Most of Leśniewski's successors both within and outside the Lwow-Warsaw School set out their own considerations on formal ontology in the spirit of his systems. They often, however, use Kotarbinski's explication of these ideas.

(2) [Same volume, pp. 463-486].

From: Jan Faye, Uwe Scheffler and Max Urchs, "Philosophical Entities. An Introduction", in: Jan Faye, Uwe Scheffler and Max Urchs (eds.), *Things, Facts and Events*, Amsterdam: Rodopi 2000, pp. 1-64.

## Definitions by somea leading philosophers

### Gottfried Wilhelm Leibniz (1646-1716)

There are three occurrences of the term *ontologia* in Leibniz:

"Ontologiam seu scientiam de Aliquo et Nihilo, Ente et Non ente, Re et modo rei, Substantia et Accidente" ("Ontology or the science of something and of nothing, of being and not-being, of the thing and the mode of the thing, of substance and accident."

From: Louis Couturat, *Opuscules et fragments inédits de Leibniz*, Paris: Alcan 1903. Reprinted Hildesheim: Georg Olms 1961, p. 512 (*Introductio ad Encyclopaediam Arcanam)* (Now in: G. W. Leibniz *Sämtliche Schriften und Briefe,* VI Sektion: Philosophische Schriften, Band IV, Text n. 126 p. 527.)

In a fragment titled by the Editors *De duobus systematis scientiarum* (1693?) on the classification of books in a library Leibniz in a deleted paragraph wrote: "Philosophici *doppelt unterstr.* (aaaa) Dida (bbbb) Logicam, Mnem (cccc) Didacticam, (aaaaa) Mnemonicam, (bbbbb) Logicam (aaaaaa) Rhet (bbbbbb) oratoriam seu (aaaaaaa) Persuasoriam (bbbbbbb) partem Rhetoricae persuasoriam, Mnemonicam; (aaaaaaaa) Metaphysicam, (bbbbbbbb) Ontologiam". (*Sämtliche Schriften und Briefe*, Akademie Verlag, Berlin 2004, Reihe IV, Bd. V, p. 592, ad. l. 25.

The third occurrence was published by Nicholas Jolley, "An Unpublished Leibniz MS on Metaphysics", *Studia Leibnitiana*, 7 (1975), 2, p. 179, l. 81 and var. ad l. 81: "Scientiam autem genera lis quam vulgo Ontolog...", but he later altered his text to read: "Scientia autem generalis quam dicam Metaphysicam vocant".

(See: Michaël Devaux, Marco Lamanna, "The Rise and Early History of the Term Ontology (1606-1730)", *Quaestio. Yearbook of the History of the Metaphysics*, 9, 2009, pp. 173-208 (on Leibniz see pp. 197-198).

### Christian Wolff (1679-1754)

"If you wish to study philosophy fruitfully, then logic must be given the very first place. Logic treats the rules which direct the cognitive faculty to the knowledge of truth. Now we should study philosophy in such a way as to acquire complete certitude. Hence, he who studies philosophy should know how to proceed in the knowledge of truth. Consequently, he should be acquainted with logic. Hence, logic must be given the very first place.
It might also be mentioned that those who are beginning in philosophy overcome their inexperience by studying logic. We have already given the reason for this. He who is unacquainted with logic does not know how to examine definitions and demonstrations with rigor. Therefore, he easily admits as certain things which greatly disagree with evidence. And he often thinks he understands things which he has not examined.
However, if everything in logic is to be demonstrated, then principles must be borrowed from ontology and psychology. Logic treats of the rules which direct the intellect in the knowledge of all

being, for the definition of logic does not restrict it to any species of being; therefore, it ought to teach us what to look for in order to know things. Now that which pertains to the general knowledge of being is derived from ontology. Hence it is clear that, in order to demonstrate the rules of logic, principles must be taken from ontology.

Furthermore, since logic explains how to direct the intellect in the knowledge of truth, it ought to teach how the operations of the intellect are used in knowing truth. Now we must learn from psychology what the cognitive faculty is and what its operations are. Hence it is also clear that, in order to demonstrate the rules of logic, principles must be taken from psychology.

This will be clearer when you have learned logic and have compared it with ontology and psychology. We have experienced this many times while carefully investigating the rules of logic and their reasons.

If all things in logic are to be rigorously demonstrated with genuine proofs, then logic must come after ontology and psychology. Logic derives its principles from ontology and psychology. Now the parts of philosophy should be ordered in such a way that those parts come first which provide principles for other parts. Therefore, ontology and psychology should precede logic if everything in logic is to be rigorously demonstrated and if its rules are to be genuinely proven.

Demonstrative method requires that logic be treated after ontology and psychology. However, the process of learning requires that logic precede all the other parts of philosophy, including ontology and psychology. Both methods cannot be observed. Weighing this more carefully, we should realize that he who does not know logic cannot be usefully acquainted with ontology and psychology. However, the principles of ontology and psychology which pertain to logic can be easily explained in logic. Therefore, we choose the method of learning in preference to the method of demonstration. Another reason why this approach is preferable is that ontological principles are definitions and psychological principles are established from experience. Consequently, ontological principles can be understood and admitted as true, even though the other things which are treated in ontology have not yet been examined. And the presuppositions of logic which can be demonstrated in psychology can be grasped a posteriori." (p. 17)

"Philosophy is the science of the possibles insofar as they can be." (*ibid.*, pp. 39-40)

"There are some things which are common to all beings and which are predicated both of souls and of natural and artificial bodies. That part of philosophy which treats of being in general and of the general affections of being is called ontology, or first philosophy. Thus, ontology, or first philosophy, is defined as the science of being in general, or insofar as it is being.

Such general notions are the notions of essence, existence, attributes, modes, necessity, contingency, place, time, perfection, order, simplicity, composition, etc. These things are not explained properly in either psychology or physics because both of these sciences, as well as the other parts of philosophy, use these general notions and the principles derived from them. Hence, it is quite necessary that a special part of philosophy be designated to explain these notions and general principles, which are continually used in every science and art, and even in life itself, if it is to be rightly organized. Indeed, without ontology, philosophy cannot be developed according to the demonstrative method. Even the art of discovery takes its principles from ontology." (*ibid.*, pp. 45-46)

From: Christian Wolff, *Preliminary Discourse on Philosophy in General* 1728), translated, with an introduction and notes, by Richard J. Blackwell, Indianapolis: The Bobbs-Merrill Company, Inc. 1963.

## Alexander Baumgarten (1714 - 1762)

"Prolegomena to Metaphysics [ 1-3]
1. METAPHYSICS is the science of first principles in human cognition.
2. Ontology, cosmology, psychology, and natural theology belong to metaphysics.
3. NATURAL METAPHYSICS is the cognition of matters treated in metaphysics that are attained through the mere use of these matters. If artificial [metaphysics] explained in 1 is also added to it, then it is useful (1) for the development of its concepts, (2) for the determination and conception of its first principles, and (3) for the continuation and certainty of its proofs, etc.

PART ONE: ONTOLOGY [ 4-35c]
Prolegomena [ 4-6]

4. ONTOLOGY (ontosophy, metaphysics, cf. 1, universal metaphysics, architectonic, first philosophy) is the science of the general predicates of a thing.
5. The predicates of a thing that are more general are the first principles of human cognition, thus ontology belongs ( 2), with reason, to metaphysics ( 1, 4).
6. Ontology contains the predicates of a thing ( 4), (I) [that are] internal, (I) universal, which are in each thing, (2) disjunctive, one of which is in each thing; (II) relative." (p. 89)
Translated from Alexander Baumgarten, *Metaphysica* (Frankfurt, 1757, 4th ed., 1739 1st ed.), reprinted at 15:4-54 and 17:23-226 of Immanuel Kant's *Gesammelte Schriften* (Berlin: Königlich-Preussischen Akademe der Wissenschaften zu Berlin, 1902-).

From: Eric Watkins, *Kant's* Critique of Pure Reason. *Background Sources Materials*, Cambridge: Cambridge University Press 2009.

## Immanuel Kant (1724-1804)

"In the course of the present semester which has just begun, I propose to hold private lectures on the following science, which I intend to handle in an exhaustive fashion.
1. Metaphysics. (...) I hope that I shall be able in the near future to present a complete account of what may serve as the foundation of my lectures in the aforementioned science. Until that time, however, I can easily, by applying gentile pressure, induce A. G. Baumgarten, the author of the text book on which this course will be based [the Metaphysica (1739)] -- and that book has been chosen chiefly for the richness of its contents and the precision of its method -- to follow the same path. Accordingly, after a brief introduction, I shall begin with empirical psychology, which is really the metaphysical science of man based on experience. (...)The second part of the course will discuss corporeal nature in general. (...) Since everything in the world can be subsumed under these two classes [organic and inorganic], I shall then proceed to ontology, the science, namely, which is concerned with the more general properties of all things." (pp. 294-295)

From: *M. Immanuel Kant's Announcement of the Programme of His Lectures for the Winter Semester 1765-1766*, translated and edited by David Walford in collaboration with Ralf Meerbote in: Immanuel Kant, *Theoretical Philosophy 1755-1770*, Cambridge: Cambridge University Press 1992.

"The Transcendental Analytic accordingly has this important result: That the understanding can never accomplish *a priori* anything more than to anticipate the form of a possible experience in general, and, since that which is not appearance cannot be an object of experience, it can never overstep the limits of sensibility, within which alone objects are given too us. Its principles are merely principles of the exposition of appearances, and the proud name of an ontology, which presumes to offer synthetic *a priori* cognitions of things in general in a systematic doctrine (e.g., the principle of causality), must give way to the modest one of a mere analytic of the pure understanding. ( A 247 / B 303)" (p. 345)

From: Immanuel Kant, *Critique of Pure Reason*, translated and edited by Paul Guyer and Allen W. Wood, Cambridge: Cambridge University Press 1998.

"Thus all pure *a priori* cognition, by means of the special faculty of cognition in which alone it can have its seat, constitutes a special unity, and metaphysics is that philosophy which is to present that cognition in this systematic unity. Its speculative part, to which this name has been especially appropriated, namely that which we call metaphysics of nature and which considers everything insofar as it is (not that which ought to be) on the basis of a priori concepts, is divided in the following way. (*a*)
Metaphysics in this narrower sense consists of transcendental philosophy and the physiology of pure reason. The former considers only the understanding and reason itself in a system of all concepts and principles that are related to objects in general, without assuming objects that would

be given (*Ontologia*); the latter considers nature, i.e., the sum total of given objects (whether they are given by the senses or, if one will, by another kind of intuition), and is therefore physiology (though only *rationalis*). (A 845 / B 873)"

(*a*) Inserted in Kant's copy of the first edition:
"I would divide it in accordance with the classes of the categories, so that in the third category, which contains the other two, yields the idea of the science:
"1. General ontology [*Allgemeine Wesenlehre*]; 2. Theory of nature; 3. Cosmology [*Weltwissenschaft*]; 4. Theology." (E CLXXXIII, p. 54; 23:43). This is the last emendation Kant made in his copy of the first edition.

"Accordingly, the entire system of metaphysics consists of four main parts. 1. Ontology. 2. Rational Physiology. 3. Rational Cosmology. 4. Rational Theology. The second part, namely the doctrine of nature of pure reason, contains two divisions, *physica rationalis* and *psychologia rationalis*. (A 847 / B 875)" (pp. 698-699)

From: Immanuel Kant, *Critique of Pure Reason* (1781), translated and edited by Paul Guyer and Allen W. Wood, Cambridge: Cambridge University Press 1998.

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"We now begin the science of the properties of all things in general, which is called ontology. (...) One easily comprehends that it will contain nothing but all basic concepts and basic propositions of our a priori cognition in general: for if it is to consider the properties of all things, then it has as an object nothing but a thing in general, i.e., every object of thought, thus no determinate object. Thus nothing remains for me other than the cognizing, which I consider. (The science that deals with objects in general, will deal with nothing but those concepts through which the understanding thinks, thus of the nature of the understanding and of reason, insofar as it cognizes something a priori. - That is transcendental philosophy, which does not say something a priori of objects, but rather investigates the faculty of the understanding or of reason for cognizing something a priori; thus with regard to content it is a self-cognition of the understanding or of reason, just as logic is a self-cognition of the understanding and of reason with regard to form; the critique of pure reason belongs necessarily to transcendental philosophy. But since one used to treat ontology without a critique - what was ontology then? An ontology that was not a transcendental philosophy. Thus one philosophized back and forth without asking: can one do that? Transcendental philosophy is the result of critique, for if I can represent the extent and the sources in a connection then the connected representation of the a priori principles is transcendental philosophy, and if I take all the consequences that flow from that, then that is metaphysics; without critique I do not know whether the concepts of pure reason and pure understanding are all there or whether some are still missing - because I have no principles. One set no boundaries to reason, and thereby went as far as one was able. They indeed comprehend that in matters of experience they cannot mix everything together, but a priori they can comprehend everything, and that because no one can refute them)." (pp. 140-141)

From: Immanuel Kant, *Lectures on Metaphysics*, Part III *Metaphysik Mrongovius* (1782-1783), translated and edited by Karl Ameriks and Steve Naragon, Cambridge: Cambridge University Press 1997.

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"Philosophy, like mathematics as well, can be divided into two parts, namely into the *pure* and into the *applied*. - *Metaphysics* is the system of pure philosophy. The word metaphysics means a science which goes beyond the boundaries of nature. (Nature is the summation of all objects of experience.) A principle *principium* is a general rule, which again contains other rules under it. lf we take together all pure concepts which can be entirely separated from the empirical ones, then we attain thereby a science.
Philosophical cognition consists of mere concepts *a priori*.
*Physics* is the philosophy of nature insofar as it depends on principles from experience; but *metaphysics* is the philosophy of nature insofar as it depends on *a priori* principles. *Moral philosophy* teaches us the practical principles of reason. The concepts *toward which everything seems to be aimed* is the concept of a *highest being and of another world*.
Metaphysics is *necessary*. Its ground is reason, which is never to be satisfied by empirical concepts. Reason finds satisfaction neither in the consideration of things, nor in the field of experience, i.e, in

the sensible world. The concepts of God and of the immortality of the soul, these are the two great incentives on whose account reason went out beyond the field of experience.

A major question is: *how are* a priori *cognitions possible*? The whole pure mathematics is a science which contains only *a priori* concepts, without its supporting their ground on empirical concepts. That there are thus actual *a priori* cognitions is already proved; indeed, there is a whole science of sheer pure concepts of the understanding. But the question arises: how are the *a priori* cognitions possible? The science that answers this question is called critique of pure reason. Transcendental philosophy is the system of all our pure a priori cognitions; customarily it is called *ontology*. Ontology thus deals with things in general, it abstracts from everything particular. It embraces all pure concepts of the understanding and all principles of the understanding or of reason.

The main sciences that belong in metaphysics are: *ontology, cosmology*, and *theology*.

(...)

*Ontology* is a pure doctrine of elements of all our a priori cognitions, or: it contains the summation of all our pure concepts that we can have *a priori* of things." (pp. 307-308)

From: Immanuel Kant, *Lectures on Metaphysics*, Part V. *Metaphysik L2* (1790-1791?), translated and edited by Karl Ameriks and Steve Naragon, Cambridge: Cambridge University Press 1997.

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"Ontology is the first part that actually belongs to metaphysics. The word itself comes from the Greek, and just means the *science of beings,* or properly according to the sense of the words, the *general doctrine of being*.

Ontology is the doctrine of elements of all my concepts that my understanding can have only *a priori*.

ON THE POSSIBLE AND THE IMPOSSIBLE. The first and most important question in ontology is: how are a priori cognitions possible? This question must be solved first, for the whole of ontology is based on the solution of this question. Aristotle decided the proposition in that he rejected all a priori cognitions, and said that all cognitions were empirical, or that they were based on the first principles of experience. For his main proposition was: nothing is in the intellect that was not first in the senses . Through this he overturned all a priori cognitions. But Plato said that all our a priori cognitions arose from an original intuition.

We have no innate concepts at all, but rather we attain them all, or we receive acquired concepts. The understanding acquires concepts by its paying attention to its own use. All that can be said of that is this: that there are certain a priori cognitions, even when it seems that they are taken from experience, or that they are used beyond the boundaries of experience. There is in our reason a certain dialectic, that is: a certain art of illusion, which shows me either something true or false. A good dialectician must maintain at the same time and with the same facility thesis and antithesis of a matter, or he must at the same time prove the truth and falsity of a matter, or be able to say yes or no. Dialectic contains a conflict which indicates that it is impossible to proceed dogmatically here in metaphysics." (p. 309)

From: Immanuel Kant, *Lectures on Metaphysics* - Part V. *Metaphysik L2* (1790-1791?), translated and edited by Karl Ameriks and Steve Naragon, Cambridge: Cambridge University Press 1997.

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"Ontology is that science (as part of metaphysics) which consists in a system of all concepts of the understanding, and principles, but only so far as they refer to objects that can be given to the senses, and thus confirmed by experience. It makes no allusion to the super-sensible, which is nevertheless the final aim of metaphysics, and thus belongs to the latter only as a propaedeutic, as the hallway or vestibule of metaphysics proper, and is called transcendental philosophy, because it contains the conditions and first elements of all our knowledge a priori.

In this field there has not been much progress since the days of Aristotle. For as grammar is the resolution of a speech-form into its elementary rules, and logic a resolution of the form of thought, so ontology is a resolution of knowledge into the concepts that lie *a priori* in the understanding, and have their use in experience; a system whose troublesome elaboration we may very well be spared, if only we bear in mind the rules for the right use of these concepts and principles, for purposes of empirical knowledge; for experience always confirms or corrects it, which does not happen if our design is to progress from the sensible to the super-sensible, for which purpose an assessment of the powers of understanding and its principles must indeed be carried out with thoroughness and care,

in order to know from whence, and with what props and crutches, reason can venture upon its transition from the objects of experience to those that are not of this kind.

Now the celebrated Wolf has rendered an incontestable service to ontology, by his clarity and precision in analysing these powers; but not by any addition to our knowledge in that area, since the subject matter was exhausted.

However, the above definition, which merely indicates what is *wanted* of metaphysics, not what there needs to be done *in it*, would simply mark it out from other doctrines as a discipline belonging to philosophy in the specific meaning of the term, to the doctrine of wisdom, and prescribe its principles to the absolutely necessary practical use of reason; though that has only an indirect relation to metaphysics considered as a scholastic science and system of certain theoretical cognitions a priori, which are made the immediate topic of concern. Hence the explanation of metaphysics according to the notion of the schools will be that it is the system of all principles of purely theoretical rational knowledge through concepts; or in brief, that it is the system of pure theoretical philosophy." (p. 354)

From: Immanuel Kant, *What Real Progress Has Metaphysics Made in Germany Since the Time of Leibniz and Wolff?* (1793/1804) - in: *Theoretical Philosophy After 1781*, edited by Henry Allison and Peter Heath, Cambridge: Cambridge University Press 2002.

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"The first stage of metaphysics can be called that of ontology, since it does not teach us to investigate the essence of our concepts of things by a resolution into their elements, which is the business of logic; it tells us, rather, what concepts of things we frame to ourselves *a priori*, and how, in order to subsume thereunder whatever may be given to us in intuition generally; which in turn could not happen save insofar as the form of *a priori* intuition in space and time makes these objects knowable to us merely as appearances, not as things-in-themselves. In this stage, reason sees itself obliged, in a series of conditions, subordinated one to another and each in turn conditioned without end, to progress incessantly towards the unconditioned, since every space and every time can never be represented as anything but part of a still larger given space or title, in which the conditions for what is given to us in each intuition must still be sought, in order to attain to the unconditioned." (p. 376)

From: Immanuel Kant, *What Real Progress Has Metaphysics Made in Germany Since the Time of Leibniz and Wolff?* (1793/1804), in: *Theoretical Philosophy After 1781*, edited by Henry Allison and Peter Heath, Cambridge: Cambridge University Press 2002.

## Salomon Maimon (1753-1800)

"After what has already been said, it is easy to think that I associate a quite different concept with the word ontology than the concept usually associated with it. That is to say, for me ontology is not a science that is applicable to the thing in itself, but only to appearances. It cannot have a wider domain. Here I will deal specifically with those points where I differ from the Wolffians, and hence also from Kant; for to say what others have already said would be superfluous, My exposition follows Baumgarten's paragraph ordering, so that the reader may more easily grasp the difference between our approaches). (1)

Ontology is the science of the most general properties of things; that is to say, not the properties of a thing in general (of a thing determined through no condition), but the properties of every a priori determined thing. As a part of metaphysics., it differs from logic as much as from the doctrine of nature as follows: logic relates merely to the form of thinking., without relation to any determined object whether determined a priori or a posteriori), while the doctrine of nature relates itself only to an object determined a posteriori. For example, the form of hypothetical propositions in logic is expressed like this: if one thing is supposed then another thing must necessarily be supposed. Here the subject (thing) is determined only by the predicate (relation of antecedent to consequent). In physics the form is expressed like this; 'heat expands ails.: here the subject of the relation ([between] heat and air) is determined by means of a posteriori conditions, In metaphysics, on the other hand, it is expressed like this: if A comes first, and B follows it according to a I rule, then the supposition of A makes it necessary to suppose B. In this case the subject of the relation of cause

and effect) is determined by means of a time-determination (succession according to a rule) that is a priori. So the concept or principle of cause belongs to metaphysics. The objects of logic can be compared to transcendental magnitudes (which are not determined in relation to one another by any algebraic equation), while the objects of metaphysics can he comparcd to variable magnitudes (which are determined only by means of their relation to one another), and the objects of physics to continuous magnitudes." (pp. 126-127)

## Notes

(1) Maimon's paragraph numbering in fact follows not the original Latin text of Baumgarten's *Metaphysica* but that of Georg Friedrich Meter's abridged German translation: Alexander Gottlieb Baumgarten, *Metaphysica* trans. G. F. Meier, (Halle: 1783).

From: Salomon Maimon, *Essay on Transcendental Philosophy* (1790), translated by Nick Midgley et. al., London-New York: Continuum 2010.

## Bernard Bolzano (1781-1848)

" I therefore think that mathematics could best be defined as a science which deals with the general laws (forms) to which things must conform in their existence. By the word 'things', I understand here not merely those which possess an objective existence independent of our awareness, but also those which simply exist among our ideas, either as individuals i.e. intuitions, or simply as general concepts, in other words, everything at all which can be an object of our perception. Furthermore, if I say that mathematics deals with the laws to which these things conform in their existence, this indicates that our science is concerned not with the proof of the existence of these things, but only with the conditions of their possibility. When I call these laws general, I mean it to be understood that mathematics never deals with a single thing as an individual, but always with whole genera. These genera can of course be higher or lower, and on this will be based the classification of mathematics into individual disciplines.
The definition given here will certainly not be found too narrow, for it clearly covers everything that has previously been counted in the domain of mathematics. But I am more afraid that it might be found rather too wide, and the objection might be made that it leaves too little for philosophy (metaphysics), as the latter will be limited by my definition to the single concern of proving, from *a priori* concepts, the real existence of certain objects. Mathematics and metaphysics, the two main parts of our a priori knowledge, would, by this definition, be contrasted with each other so that the first deals with the general conditions under which existence of things is possible; the latter, on the other hand, seeks to prove a priori the reality of certain objects (such as the freedom of God and the immortality of the soul). Or, in other words, the former concerns itself with the question, how must things be made in order that they should be possible? The latter raises the question, which things are real -- and indeed (because it is to answered a priori) -- necessarily real? Or still more briefly, mathematics would deal with hypothetical (1) necessity, metaphysics with absolute necessity." (p. 183)

## Notes

(1) However, not all its propositions have this hypothetical form, because the condition, especially in chronometry and geometry, where it is the same for all propositions, is tacitly assumed.

From: Bernard Bolzano, "Contributions to a Better-Grounded Presentation of Mathematics" (1810), translated by William Ewald in: *From Kant to Hilbert: A Source Book in the Foundations of Mathematics*, vol. I, Oxford: Clarendon Press 1996.

## Franz Brentano (1838-1917)

"*The Fourfold Distinction of Being.*Being is a homonym. Its several senses fit into the fourfold distinction of accidental being: being in the sense of being true, being of the categories, and potential and actual being.

'Being is said in various ways' [*to de on legetai men pollachos*], says Aristotle in the beginning of the fourth book of his *Metaphysics* (Met. IV. 2 1003a33). He repeats this in Books VI and VII and several more times in other places. In these passages he enumerates a number of concepts, each of which, in different ways, is called a being. In Met. IV. 2 1003b6 he says "one thing is said to be because it is substance, another because it is an attribute of substance, still another because it is a process toward substance, or corruption of substance, or privation of substantial forms or quality of substance, or because it produces or generates substance or that which is predicated of substance, or because it is a negation of such a thing or of substance itself. For this reason we also say that non-being is non-being." The various sorts of being which are here enumerated can be reduced to four kinds: (1) Being which has no existence whatever outside the understanding (privation, negation; *stereseis, apophaseis)*; (2) The being of movement and of generation and corruption (process toward substance, destruction; *hodos'eis ousian, phthora*); for though these are outside the mind, they do not have complete and perfect existence (cf. Physics III.1.201a9); (3) Being which has complete but dependent existence (affections of substance, qualities, things productive and generative; *pathe ousias, poietika, genetika*); (4) The being of the substances (*ousia*). Another enumeration of concepts to which the appellation "being" is attached in different ways is given in Met. VI. 2 1026a33. In that passage, one kind of being is said to be accidental being, another being in the sense of being true, whose opposite is non-being in the sense of being false. Besides, there is said to be another kind of being which divides into the categories, and, in addition to all of them, potential and actual being. It will be noted that this division, too is fourfold, but does not consistently correspond to that in Book IV.

Thus the distinction of being given in Book VI will provide the organization of our investigation. We shall deal, first of all, with the accidental being, then with the being in the sense of being true and non-being in the sense of being false, then with potential and actual being and finally with the categories. In his Metaphysics Aristotle dealt with the last two in opposite order. He first had to acquaint us with substance [ousia] and with its form and matter (Met. VIII) in order to be able to speak afterwards of potential and actual being. Since our essay is not intended to become a complete ontology, the first order is more suitable to our purposes, and the subsequent development itself will justify its adoption." (pp. 3-5)

From: Franz Brentano, *On the Several Senses of Being in Aristotle* (1862), translated by Rolf George, Berkeley: University of California Press 1975.

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"A metaphysical theory may begin with the following explication of words: By that which is, when the expression is used in the strict sense, we understand a thing; for example, a body, a mind, or a topoid of more or fewer than 3 dimensions. A part of a body or of a topoid may also be called a thing. And so a number of things taken together may also be called a thing. But it would be wrong to suppose that the two parts of a thing taken together constitute an additional third thing. For where we have an addition the things that are added must have no parts in common. Thus we may say, for example, that a triangle has three angles, but not that it has three pairs of angles: angles A and B form a pair, as do B and C, and also C and A, but each of these pairs has a part in common with each of the others.

(...)

The expression ' *that which is*' is also used in various extended senses:* (a) The resources of language enable us to form an abstractum for every concretum. For the concretum, that which is, there is the abstractum, being; for body, there is the abstractum corporeality, for mind, there is spirituality or mentality, for lover, there is love; for which knows, there is knowledge; for that which is formed, there is form; and so on. What do these abstracta denote? Obviously not the same things as do the corresponding concreta; this would be a pointless duplication of names. Sometimes the relation between the concrete and abstract terms is explained by saying: "That which is formed is formed in virtue of its form. For example, that which is round is round in virtue of its roundness; and whatever is a body is a body in virtue of its corporeality or its corporeal nature." It has also been said that the roundness is in that which is round and that the corporeal nature is in the body. This seems to suggest that the concretum is related to the abstractum as part to whole. Indeed, the

abstractum has been called the formal part of the concretum; the concretum is then said to be that which is denoted by the concrete term because it contains the abstractum as part.

(a) If abstracta were in fact thus parts of concreta there would be no objection to including abstracta among those things which are in the proper sense. But actually they are not parts. A division of the concretum into two parts one of which is the form corresponding to the abstractum is plainly impossible. This division is purely fictive: it amounts to saying that a thing has as many parts as there are predicates that apply to it. Using abstracta in this way, one says that a thing is round because roundness is included among its parts just as one says that an animal is hairy because hair is included among its parts. But whereas an animal's hair is a real thing which can be separated from the animal both in fact and in thought, the contrary is true of the so-called roundness, which can neither exist by itself nor be thought of by itself. Fictions of this sort are often harmless, and they may even be useful, as when mathematicians treat circle as a regular polygon with an infinite number of sides or assume that parallel lines meet in infinity. If such fictions served no purpose whatever, they would hardly have come into use. But what has been expressed by abstract terms can always be expressed by concrete ones, without recourse to fictions. Leibniz pointed out that by such rephrasing a number of difficulties that baffled the Scholastic philosophers are easily disposed of. So far as linguistic usage is concerned, we can say, not only that there is something round, but also that there is such a thing as roundness; but we must bear in mind that the "is" in the latter statement is used in an extended sense, and that the only thing that can properly be said to be here is the thing which is round.

(b) Instead of saying that a thinker is thinking of something, one can also say that there is something which is thought about by him. Here, again, we are not dealing with what may be said to be in the proper sense - indeed, the person in question may himself deny that what he is thinking about is something that there is. Even a contradiction in terms, something that is plainly impossible. can be something that is thought about. We have just said that not roundness but that which is round is in the strict sense; similarly, not the contemplated round thing, but the person contemplating it is what is in the strict sense. This fiction, that there is something which exists as a contemplated thing, may also prove harmless, but unless one realizes that it is a fiction, one may be led into the most glaring absurdities. Things which exist as objects of thought do not constitute a subspecies of genuine being, as some philosophers have assumed. Once we have translated statements about such fictive objects into other terms, it becomes clear that the only thing the statement is concerned with is the person who is thinking about the object. What I have said here with general reference to that which is contemplated or thought about also applies, of course, to that which is affirmed.

(c) If one says, something is past or something is future, one is making an affirmation. But one is not thereby affirming or accepting something as being. One is making an affirmation in the temporal mode of the past or the future instead of the temporal mode of the present. If one were to say "The past Caesar is," instead of saying "Caesar is past" he would be using is in an extended sense. The case would be analogous to that in which, instead of saying that there can be no such thing as a round square, one says that a round square is an impossibility. Once again, a different phrasing would be a suitable way of showing that we are not dealing with a strict interpretation of being.

(d) Many other examples of improper use of the - is - could be cited. Consider, for example, the statement that there is a time that has neither beginning nor end or the statement that there is a three-dimensional space indefinitely in all directions. It is easy to see on the basis of what has been said already that such statements do not refer to anything than can be in the strict sense. Time and space seem to belong to the abstracta. This means that what is in the strict sense, is not space or time, but rather that which is spatial and that which is temporal. Instead of speaking of space and time, we should speak of "things that are spatial, "things that are spatially different," "things that are temporal," "things that are simultaneous," and so on. Those philosophers who say that there is an infinite space as precondition of everything spatial conceive of this space as a thing. But this doctrine has no basis; indeed it is demonstrably false and absurd. Similarly, what philosophers have called time would be a thing if it actually existed. But time, thus considered as a thing, is a philosophical aberration. And this is so even if it is true that there is a thing that had no beginning and will always be, a thing that is continuously undergoing changes and producing changes in everything outside itself, thus making indirectly necessary the uniformity of the temporal process in things. Such an entity would not correspond to the thing that philosophers have thought of as being time." (pp. 16-19 notes omitted)

From: Franz Brentano, *The Theory of Categories* (1933), translated by Roderick M. Chisholm and Norbert Guterman, The Hague: Martinus Nijhoff 1981.

## Alexius Meinong (1853-1920)

"We must turn, in the first place, to a philosophical discipline which is not as yet part of the tradition, which is therefore in a certain sense new, and about which I have said some things which were intended to be of a fundamental nature. To begin with, it is impossible to give a regular definition of entity [Gegenstand]; for genus and differentia are lacking, since everything is an entity. However, the etymology of the word ' *gegenstehen*' yields at least an indirect characteristic, since it points to the experiences which apprehend entities; but these experiences must not be thought of as somehow constituting the entities. Every inner experience, at least every sufficiently elementary one, has such an entity; and insofar as the experience finds an expression - hence first of all in the words and sentences of language - this expression has a meaning [Bedeutung], and this meaning is always an entity. All knowledge, too, deals therefore with entities.

But large and important groups of entities have found no home in the traditional sciences; these sciences, moreover, are for the most part exclusively concerned with a knowledge of reality [*Wirklichen*], while even unreal things with being, things without being, possibilities, and even impossibilities can be objects of knowledge, namely, of a knowledge which is of interest to the as yet theoretically naive person only, as it were, when it promises to serve as a means for knowledge of reality. In contrast to such a preference for reality, which, in fact, has been overcome so far in no science, there exists the obvious need for a science which deals with entities without any restriction, especially without restriction to the special case of existence, so that it can be called existence-free [*daseinsfrei*].This science about entities as such, or about pure entities, I have called the theory of entities.

Much of what belongs to this theory has already been studied under the title 'Logic' (especially: 'Pure Logic'); and that modem mathematical logic belongs completely to the realm of the theory of entities is only concealed by its goal of being a calculus, which seems to favor an extensive externalization [*Veräusserlichung*] in the sense of the logic of extensions, while it is just a complete internalization [*Verinnerlichung*] which the theory of entities strives for and makes possible. People have dealt with topics from the theory of entities since antiquity under the heading of 'Metaphysics,' and, especially, under the heading of 'Ontology' as a part of metaphysics; and they have not always failed to recognize the characteristic feature of freedom from existence. But as a goal in itself, the concept of a theory of what is free from existence has, so far as I can see, never been espoused. According to this concept, there belongs to the theory of entities everything that can be made out about entities irrespective of their existence (for example, whatever it is that holds for the class of all colors which make up the 'color space,' as distinguished from the 'color body' which is restricted to the psychologically given); hence, everything that is a matter of a priori knowledge, so that the a priori can be treated as a defining characteristic of the kind of knowledge of which the theory of entities consists.

What belongs to the theory of entities is thus what is rational. Insofar [as it is that], it is therefore anything but a newly discovered country, but rather, in regard to one of its most important parts, mathematics, the justly admired standard of scientific precision. What is new is, perhaps, an insight into the peculiarity of this country and into the nature of its boundaries - unless one should rather speak of its boundlessness. In this respect, it is a kind of companion piece to metaphysics which tries to comprehend the totality of reality, while the theory of entities, because of its freedom from existence, tries to encompass also everything that is not real. Naturally, this freedom from existence does not mean that entities as such cannot have existence in the true sense. The fact that the kind of consideration and knowledge peculiar to the theory of entities therefore also appears where it can be applied to existents, constitutes one of the main values of the postulation of the new science.

Just as the concept of an entity in general is to be determined, at least cum grano salis, with an eye on apprehension, so are the main groups of entities characterized in regard to the main groups of apprehending experiences; and apprehensions are, as mentioned, all elementary experiences. Corresponding to the four main groups of the latter - to presentation [*Vorstellen*],thought [*Denken*], emotion [*FühIen*],and desire [*Begehren*] - there are, therefore, four main groups of entities: objects

[*Objekte*], objectives [*Objektive*], dignitatives [*Dignitative*], and desideratives [*Desiderative*]. However, the characteristics of the latter are not derived from the characteristics of the apprehending experiences. For this reason, nothing stands in the way of assigning to the immeasurable realm of objects, for example, also the inner experiences, even though these inner experiences cannot be given through presentations, but can only be apprehended through self-presentation or with the help of imagination." (Appendix I, pp. 224-225)

From: Alexius Meinong, "Self-Presentation" (1921), translated in: Reinhardt Grossmann, *Meinong*, London: Routledge & Kegan Paul 1974.

## Kazimierz Twardowski (1886-1938)

"In order to explain the meaning of the word 'object' further, one can also - as we have done already - point to the linguistic designation and assert that everything which is designated is an object. Such designation uses either nomina understood in a grammatical sense, or it uses phrases consisting of nomina and other expressions, or, finally, it uses other parts of speech, assuming that they have been converted into nouns. One can, therefore, say that everything which is designated by a noun or by an expression which is used as a noun is an object in the sense here adopted.

Now, since everything can be object - object of presentation - the subject of the presentation itself not excluded, those who conceive of the object as the summum genus are justified. Everything which is, is an object of a possible presentation; everything which is, is something. And here, therefore, is the point where the psychological discussion of the difference between content and object of presentations turns into metaphysics.

The objects of presentations have indeed been viewed from a meta physical point of view up to the present time. In calling them *onta* [in Greek], *entia* [in Latin], one revealed the way which led to them. However, that the Aristotelian on - like the ens of medieval philosophy - is nothing else but the object of presentations is shown by the fact that all doctrines about the ens, as far as they are correct, hold for the object of presentations. We shall confine ourselves here to the most famous of these doctrines.

1. The object is something different from the existent; some objects have existence in addition to their objecthood [*Gegenständlichkeit*], that is, in addition to their property of being presented (which is the real sense of the word 'essentia'); others do not. What exists is an object (*ens habens actualem existentiam*), as is also what merely could exist (ens possibile); even what never can exist but what can only be conceived of (ens rationis) is an object; in short, everything which is not nothing, but which in some sense is "something," is an. object. (1). In fact, the majority of scholastics maintain that "aliquid" is synonymous with "ens," in contrast to those who conceive of the former as an attribute of the latter.

2. Object is summum genus. Scholastics express this by the statement that the concept of ens is not a generic concept, but is a transcendental concept, because it "*omnia genera transcendit*."

3. Every object of a presentation can be object of a judgment and object of an emotion. This is the meaning of the scholastic doctrine that every object of a presentation is "true" and "good." The (metaphysical) truth of an object does not consist in being judged in a (logically) true judgment; as little as its "goodness" depends on whether the feeling concerning it is good in the ethical sense or not. Rather, an object is called true inasmuch as it is object of a judgment, and it is called good inasmuch as it is related to an emotion. (...)

4. An object is called true with regard to its ability to be judged; it is called good with regard to its ability to be the object of an emotion. The question could be raised whether the object has, in an analogical manner, an attribute which expresses its conceivability and which, therefore, would be a name of the object inasmuch as it is presented. Now, medieval philosophy knows of a third attribute of the object; every ens, according to this philosophy, is not only verum and bonum, but also unum. We shall investigate in a different context - since this question will arise there quite naturally - what this unity means for the presentation of an object, especially whether we may see in it the analogue in the sphere of presentations to truth in the sphere of judgments and goodness in the sphere of emotions.

5. If the object of presentations, judgments, and feelings is nothing else but the Aristotelian-scholastic ens, then metaphysics must be definable as the science of objects in general, taking this

word in the sense here proposed. And this is indeed the case. The particular sciences, too, deal with nothing else but the objects of our presentations, their changes, their properties, as well as the laws according to which objects affect each other. Only, the particular sciences always deal with a more or less limited group of objects, a group which is formed by the natural context or a certain purpose. The natural sciences, in the widest sense of the word, for example, are concerned with the peculiarities of those objects which one calls inorganic and organic bodies; psychology investigates the properties and laws characteristic of mental phenomena, of mental objects. Metaphysics is a science which considers all objects, physical - organic and inorganic - as well as mental, real as well as non-real, existing objects as well as non-existing objects; investigates those laws which objects in general obey, not just a certain group of objects. What we here mean is expressed by the venerable definition of metaphysics as the science of being [*Seienden*] as such.(2) The backward glance at some of the points of the scholastic doctrine of ens is supposed to characterize as precisely as possible the meaning which we connect, in the present investigation, with the word 'object'. Summarizing what was said, we can describe the object in the following way. Everything that is presented through a presentation, that is affirmed or denied through a judgment, that is desired or detested through an emotion, we call an object. Objects are either real or not real; they are either possible or impossible objects; they exist or do not exist. What is common to them all is that they are or that they can be the object (not the intentional one!) of mental acts, that their linguistic designation is the name, (...) and that considered as genus, they form the summum genus which finds its usual linguistic expression in the word 'something.' Everything which is in the widest sense "something" is called "object," first of all in regard to a subject, but then also regardless of this relationship." (pp. 34-37)

## Notes

(1) Some philosophers, like Suárez, withhold the name ens from what has merely a "ficta" or "chimaerica essentia" and give it only to the "essentia realis." However, this restriction seems to involve an inconsistency. Suárez, *Disputationes metaphysicae* II, sect. 4.
(2) Compare Brentano, *On the Several Senses of Being in Aristotle* vol. I, chapter 1, par. 1.

From: Kazimierz Twardowski, *On the Content and Objects of Presentations* (1894), translated and with an introduction by Reinhardt Grossmann, The Hague: Martinus Nijhoff Publishers 1977.

## Edmund Husserl (1859-1938)

"Section 5. The concept of Pure logic as MATHESIS UNIVERSALIS (the unity of the "analytic doctrine of forms for that which can be an object on the one hand with the categories of meaning on the other). The "Positivity" of logic and the philosophical Problem of its phenomenological elucidation. - Positive science in general and phenomenology.
I turn now to the misinterpretations having to do with my idea of a "pure logic:" which present themselves in various ways depending on the standpoint from which the philosophical reader approaches the *Logical Investigations*. It might be best here if I meet these misinterpretations by pointing out positively what is essential to my position with special emphasis upon the points which have not received enough attention.
"Pure logic," in its most comprehensive extension characterizes itself by an essential distinction as "*mathesis universalis*." It develops through a step-by-step extension of that particular concept of formal logic which remains as a residue of pure ideal doctrines dealing with "propositions" and validity after the removal from traditional logic of all the psychological misinterpretations and the normative-practical goal positings [*Zielgebungen*]. In its thoroughly proper extension it includes all of the pure "analytical" doctrines of mathematics (arithmetic, number theory, algebra, etc.) and the entire area of formal theories, or rather, speaking in correlative terms, the theory of manifolds [*M annigfaltigkeitslehre*] in the broadest sense. The newest development of mathematics brings with it that ever new groups of formal-ontological laws are constantly being formulated and mathematically treated which earlier had remained unnoticed. "*Mathesis universalis*" as an idea includes the sum total of this formal *a priori*. It is, in the sense of the "Prolegomena," directed

toward the entirety of the "categories of meaning" [*Bedeutungskategorien*] and toward the formal categories for objects correlated to them or, alternatively, the *a priori* laws based upon them. It thus includes the entire *a priori* of what is in the most fundamental sense the "analytic" or "formal" sphere - a sense which receives a strict specification and clarification in the third and sixth investigations." (pp. 28-29)

From: *Introduction to the* Logical Investigations. *A Draft of a Preface to the* Logical Investigations (1913), edited by Eugen Fink, translated with introductions by Philip J. Bossert and Curtis H. Peters, The Hague: Martinus Nijhoff 1975.

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"Region and Category. The Analytic Region and its Categories
(...)
Let us start from formal ontology (always as pure logic in its full extent as mathesis universalis) which, as we know, is the eidetic science of any object whatever. Anything and everything is an object in the sense proper to formal ontology, and an infinity of various truths, distributed among the many disciplines of mathesis, can be established for it. But they all lead back to a small stock of immediate or "fundamental" truths which function as "*axioms*" in the disciplines of pure logic. We define now as *logical categories or categories of the logical region, any object whatever: the fundamental concepts of pure logic* which occur in those axioms - the concepts by means of which, in the total set of axioms, the logical essence of any object whatever becomes determined, or the concepts which express the unconditionally necessary, and constituent determinations of an object as object, of anything whatever in so far as it can be something at all. Because the purely logical, in the sense delimited by us with absolute exactness, determines that concept of the "*analytic*" (25) as contrasted with the "*synthetic*," which alone is important (but which is important fundamentally) to philosophy, we may also designates these categories as >*analytic*." (pp. 21-22)
(...) "*apophantic logic*," although it makes statements exclusively about significations, is nevertheless part of formal ontology in the fully comprehensive sense. Still one must set the signification-categories apart as a group by themselves and contrast them with the others as the formal objective categories in the pregnant sense. (26)" (p. 22)

**Notes**

(25) AUTHOR FOOTNOTE: cf. *Logische Untersuchungen*, Vol. II, "Third Investigation," §§ 11 ff.
(26) AUTHOR FOOTNOTE: On the division of logical categories into signification-categories and formal-ontological categories, cf. *Logische Untersuchungen* vol. I 67 [*Logical Investigations* pp. 236f.] The entire "Third Investigation" specifically concerns the categories of whole and part. A that time I did not venture to take over expression "ontology" which was objectionable on historical grounds; rather I designated this investigation (p. 222 of the first edition) as part of an "*apriorische Theorie der Gegenstande als solcher*"" ["apriori theory of objects as objects"] a phrase contracted by Alexius Meinong to make the word "*Gegenstandtheorie*" ["object-theory"]. Now that times have changed, however, I consider it more correct to rehabilitate the old expression, "ontology".

From: Edmund Husserl, *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy. First Book: General Introduction to a Pure Phenomenology* (1913), translated by F. Kersten, The Hague: Martinus Nijhoff 1982.