

# Selected Bibliography on Bernard Bolzano's Contributions to Logic and Ontology. Second Part: D - M

## Pages about Bernard Bolzano

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## STUDIES ON BERNARD BOLZANO'S LOGIC AND ONTOLOGY

1. Dahnhardt Simon. *Wahrheit und Satz an sich. Zum Verhältnis des Logischen zum Psychischen und Sprachlichen in Bernard Bolzanos Wissenschaftslehre*. Pfaffenweiler: Centaurus-Verlagsgesellschaft 1992.
2. Danek Jaromir. *Weiterentwicklung der Leibnizschen Logik bei Bolzano*. Meisenheim a Glan: A. Hain 1970.
3. Danek Jaromir, "La méthodologie de Bolzano," *Dialogue* 10: 504-516 (1971).  
"L'étude concerne la théorie des fondements, développée dans la "Doctrin de la Science" de Bolzano, théorie très proche des points de départ de la méthode phénoménologique. L'oeuvre de Bolzano est une des sources de la logique, conçue comme théorie de la science; ses résultats ont contribué à la version sémantique des recherches logiques, ainsi qu'à la fondation de la théorie des modèles. notre temps évalue surtout le contenu éthique de l'oeuvre bolzanienne."
4. Danek Jaromir. *Les projets de Leibniz et de Bolzano. Deux sources de la logique contemporaine*. Quebec: Presse de l'Université de Laval 1975.
5. Dapunt Inge, "Zur Klarstellung einiger Lehren Bernard Bolzanos," *Journal of the History of Philosophy* 7: 63-73 (1969).  
"The purpose of this paper is to clarify some of Bolzano's ontological and semantic notions and theses. Especially the following topics in Bolzano are discussed here: division of all things; distinction between "there is" (es gibt) and "exist" (existiert, ist wirklich); difference between propositions (satze an sich) and ideas-in-themselves (vorstellungen an sich); difference between judgements (urteile) and actual ideas (subjektive vorstellungen); thesis that linguistic expressions of different structure can have the same sense. The paper is a discussion and correction of part 1 of Grossmann's "Frege's ontology" ("The Philosophical Review" LXX, 1961, p. 23-40) in which Bolzano's ideas are referred inexactly or even wrongly. "
6. Dapunt Inge, "Zur Frage der Existenzvoraussetzungen in der Logik," *Notre Dame Journal of Formal Logic* 11: 89-96 (1970).
7. Dahnhardt Simon. *Wahrheit und Satz an sich: Zum Verhältnis des Logischen zum Psychischen und*

*Sprachlichen in Bernard Bolzanos Wissenschaftslehre.* Pfaffenweiler: Centaurus-Verlagsgesellschaft 1992.

8. De Jong Willem R., "Bernard Bolzano, Analyticity and the Aristotelian Model of Science," *Kant-Studien* 91: 328-349 (2001).  
 "This article intends to make clear that Bolzano's at first sight somewhat strange perception and use of the analytic-synthetic distinction should be understood in the framework of the so-called Aristotelian model of science. In contrast with the case of Frege and the logical positivists, logical truth is not central to Bolzano's approach to analyticity. It is shown that Bolzano, at least originally, hoped to argue that every analytic truth is based on or grounded in a synthetic truth. The difficulties however encountered to clarify the notion of scientific demonstration prevent him to work out this view in a systematic way."
9. De Jong Willem R., "The analytic-synthetic distinction and the classical model of science: Kant, Bolzano and Frege," *Synthese* 174: 237-261 (2010).  
 "This paper concentrates on some aspects of the history of the analytic-synthetic distinction from Kant to Bolzano and Frege. This history evinces considerable continuity but also some important discontinuities. The analytic-synthetic distinction has to be seen in the first place in relation to a science, i.e. an ordered system of cognition. Looking especially to the place and role of logic it will be argued that Kant, Bolzano and Frege each developed the analytic-synthetic distinction within the same conception of scientific rationality, that is, within the Classical Model of Science: scientific knowledge as *cognitio ex principiis*. But as we will see, the way the distinction between analytic and synthetic judgments or propositions functions within this model turns out to differ considerably between them."
10. Di Bella Stefano, "L' "Anti-Kant" di Franz Prihonsky e la critica bolzaniana alla teoria kantiana del giudizio," *Rivista di Filosofia* 97: 233-250 (2006).  
 "Franz Prihonsky's "Neuer Anti-Kant" - a concise commentary to Kant's "Critique of Pure Reason", written by a follower of Bernard Bolzano - is an exemplary specimen of a critical approach to Kant from Bolzano's point of view. This paper focuses attention on the criticism of Kant's theory of judgement. In Bolzano's and Prihonsky's reflection, Kantian dichotomies - "a priori / a posteriori," and analytic/synthetic - play a seminal role; but their meaning is profoundly reshaped in a different conceptual framework. As a consequence, also their combination in the doctrine of synthetic "a priori" judgements - hence, the problem itself of the "Critique", and the solutions it receives - turns out to be seen in a quite different light."
11. Dörn Georg, "Zu Bolzanos Wahrscheinlichkeitstheorie," *Philosophia Naturalis* 24: 423-441 (1987).
12. Drozdek Adam, "Logic and ontology in the thought of Bolzano," *Logic and Logical Philosophy* 5 (1997).  
 "Logic and theology were two domains of great importance to Bolzano. His attempt to reconcile the demands of these two domains led Bolzano to very strong logical realism, or, objectivism, whereby theology could be put on a firm ground. The paper analyzes the problem of objective concepts, propositions, and truths, with an attempt to give an interpretation of these entities, to account for their puzzling ontological status in Bolzano's system."
13. Dubucs Jacques and Lapointe Sandra, "Preuves par excellence," *Philosophiques* 30: 219-234 (2003).  
 "Bolzano was the first to establish an explicit distinction between the deductive methods that allow us to recognize the certainty of a given truth and those that provide its objective ground. His conception of the relation between what we, in this paper, call "subjective consequence", i.e., the relation from *epistemic reason* to consequence and "objective consequence", i.e., grounding (*Abfolge*), however, suggests that Bolzano advocated an "explicativist" conception of proof: proofs *par excellence* are those that reflect the objective order of grounding. In this paper, we expose the problems involved by such a conception and argue in favor of a more rigorous demarcation between the ontological and the epistemological concern in the elaboration of a theory of proof."
14. Dubucs Jacques and Lapointe Sandra, "On Bolzano's alleged explicativism," *Synthese. An International Journal for Epistemology, Methodology and Philosophy of Science* 150: 229-246 (2006).  
 "Bolzano was the first to establish an explicit distinction between the deductive methods that allow

us to recognise the certainty of a given truth and those that provide its objective ground. His conception of the relation between what we, in this paper, call "subjective consequence", i.e., the relation from *epistemic reason* to consequence and "objective consequence", i.e., grounding (*Abfolge*) however allows for an interpretation according to which Bolzano advocates an "explicativist" conception of proof: proofs par excellence are those that reflect the objective order of grounding. In this paper, we expose the problems involved by such a conception and argue in favour of a more rigorous demarcation between the ontological and the epistemological concern in the elaboration of a theory of demonstration."

15. Duhn Anita von. Bolzanos Kritik an Kants theoretischer Philosophie. In *Bolzano-Forschung 1992-1998*. Edited by Berg Jan and Morscher Edgar. Sankt Augustin: Academia Verlag 1999. pp. 169-180
16. Duhn Anita von. Theoretical laws and normative rules: Kant and Bolzano's views on logic. In *Kant und die Berliner Aufklärung. Akten des 9. Internationalen Kant-Kongresses. Band V: Sektionen XV-XVIII*. Edited by Gerhardt Volker, Horstmann Rolf-Peter, and Schumacher Ralph. Berlin: Walter de Gruyter 2001. pp. 3-12  
 "Does logic instruct us how to think correctly? If so, what place does methodology have in logic? Is logic an instrument which provides rules for correct thinking or a system of proof for scientific theories, or is the doctrine of method merely an appendix to a doctrine of elements? The question whether logic is an *organon* is related to the question whether logical laws are theoretical truths or normative laws. Kant and Bolzano agree that logical laws basically provide us with truths, but that they can be apprehended as telling us how to think. (1) So a theoretical judgment that something is the case precedes the normative judgment that we may or should do something about it. Does it follow that Kant and Bolzano also agree on the question of whether logic is an *organon* which instructs us how to think? I will show that despite their divergent positions on logic, both authors claim that we apply normative rules because they are true." p. 3  
  
 (1) Kant and Bolzano agree with Husserl and Frege, who thought that a normative act, such as demanding or permitting, presupposes a theoretical act, such as judging or believing and that every law that states what *is* can be apprehended that one *ought* to think in accordance with it. Cf. Frege (1893) *Grundgesetze der Arithmetik*, intro. XV; Husserl (1900) *Prolegomena*, §§ 3, 13-14. I discuss this issue in "*Is logic a theoretical or practical discipline? Kant and/or Bolzano*", to appear in the *Archiv für Geschichte der Philosophie*. [vol. 84, no. 3 (2002) pp. 319-333]
17. Duhn Anita von, "Bolzano's account of justification," *Vienna Circle Institute Yearbook* 10: 21-33 (2002).  
 "Bolzano claims that even self-evident propositions require proofs. I reconstruct his account of justification, designed to replace the criterion of intuitive self-evidence by providing a scientific base for the demonstrative sciences. Justification combines epistemological and logical aspects: it is both a mark distinguishing knowledge from opinion and a strict derivative proof excluding all relevant alternatives as well as alien intermediate concepts. I conclude that whilst Bolzano devised a procedure for grounding true propositions, he reintroduces an epistemological problem: how can we understand primitive truths without recurring to intuition and justify the applicability of logical rules without empirical verification?"
18. Dummett Michael. *The origins of analytical philosophy*. Cambridge: Harvard University Press 1994.
19. Dummett Michael, "Comments on Wolfgang Künne's Paper," *Grazer Philosophische Studien* 53: 241-248 (1997).  
 Comments on: *Propositions in Bolzano and Frege*.
20. Etchemendy John. *The concept of logical consequence*. Cambridge: Harvard University Press 1990.
21. Fels Heinrich. *Bernard Bolzano. Sein Leben und sein Werk*. Leipzig: Felix Meiner 1929.
22. Føllesdal Dagfin, "Bolzano's legacy," *Grazer Philosophische Studien* 53: 1-11 (1997).  
 Original German published as: *Bolzanos bleibende Leistungen* in: Arkadiusz Chrudzimski and Wolfgang Huemer (eds.) - *Phenomenology and analysis. Essays on Central European philosophy* - Frankfurt, Ontos Verlag, 2004 pp. 57-68.

"Bernard Bolzano (1781-1848) was an original and independent thinker, who left a lasting legacy in several areas of philosophy. Four such areas are singled for special attention: political philosophy, ethics and theology, logics and semantics, and mathematics. In all these areas he was far ahead of his time. He had pioneering ideas in political philosophy and in ethics and philosophy of religion, and he argued for them in a brilliantly clear way. In logic and semantics he anticipated Frege, Carnap and Quine on important points, and he had intriguing, yet to be explored, ideas on intuition and other fundamental philosophical notions. In the foundations of mathematical analysis and the theory of infinite sets he anticipated Weierstrass and Cantor."

23. Føllesdal Dagfin. Bolzano, Frege and Husserl on reference and object. In *Future pasts. The analytic tradition in twentieth century philosophy*. Edited by Floyd Juliet and Shieh Sanford. Oxford: Oxford University Press 2001. pp. 67-80

"Husserl's notion of the intentional object may be compared and contrasted with Bolzano's and Frege's views on the reference of linguistic expressions, especially since Bolzano was a main influence on the development of Husserl's views. Føllesdal responds to David Bell's criticisms of Føllesdal's earlier readings of Husserl on reference, directedness, and the notion of a determinable object  $x$ . He argues that Husserl's treatment of indexicals and reference is in some ways more insightful than the treatments of either Bolzano or Frege. To preempt the charge that Husserl's philosophy forwards a naïve, overly mentalistic model of the mind and its expressive capacities, Føllesdal mentions that Husserl developed a thought experiment nearly identical to the well-known Twin Earth scenario later framed by Hilary Putnam to criticize internalist, mentalistic theories of meaning. Føllesdal argues that Husserl was ahead of his time in trying to account for the semantics of indexical and demonstrative terms, partly under the influence of Brentano. This study shows that the opposition between so-called continental and so-called analytic philosophy is not historically as well-grounded as many have supposed."

24. Fréchette Guillaume. *Gegenstandslose Vorstellungen. Bolzano und seine Kritiker*. Sankt Augustin: Academia Verlag 2010.
25. Ganthaler Heinrich von and Simons Peter, "Bolzanos Kosmologischer Gottesbeweis," *Philosophia Naturalis* 24: 469-475 (1987).
26. Gensini Stefano. *"De linguis in universum": on Leibniz's ideas on languages. Five essays*. Munster: Nodus Publikationen 2000.
27. George Rolf, "Enthymematic consequence," *American Philosophical Quarterly* 9: 113-116 (1972). "Enthymematic validity, in contrast to logical validity, obtains when all substitutions on some (but not all) of an argument's extralogical constants which make the premises true also make the conclusion true. This condition is shown to be equivalent to the classical view for the domain of syllogisms, and for arguments which depend on the properties of relations. Enthymematic consequence turns out to be a special case of consequence as defined by Bolzano."
28. George Rolf, "A Postscript on Fallacies," *Journal of Philosophical Logic* 12: 319-325 (1983).
29. George Rolf, "Bolzano's Consequence, Relevance and Enthymemes," *Journal of Philosophical Logic* 12: 299-318 (1983).

"Historians of logic tend to view their task as the application of modern insights and symbolic techniques to old texts. Perhaps they do this on the assumption that what is good in these works must be an adumbration of what was recently done and is now well known. This holds, at any rate, for most discussions of Bolzano's theory of logical consequence.

In the present paper I shall reverse this procedure and comment on some problems and beliefs of contemporary logic from what I take to be Bolzano's point of view. This will have the advantage of bringing out more forcefully than a straight exegesis what his view was and will also, I hope, put in doubt certain contemporary dogmas.

I begin by applying his definition of consequence to propositional logic. Bolzano did not entertain this branch of logic, and to this extent my account is ahistorical. That it is, nonetheless, a straight extension of his theory is shown by the fact that all 23 theorems about consequence which he proves in his *Theory of Science* hold in this application I then consider how C. I. Lewis's so-called "independent proof" for  $A \rightarrow A \vdash B$  fares in this system (it fails). After some comments on the proof, I show that in Bolzano-consequence premisses and conclusion share a subsentence (a necessary condition of relevance). There follows a discussion of enthymemes and a general procedure for

generating the so-called "nutting premiss". At the end I sketch a taxonomy of consequence relations and briefly remark on earlier interpretations of Bolzano's work. In using the first person plural (from now on) I mean to speak for those who think Bolzano's approach sound, a group that includes at least Bolzano and myself." (p. 299, notes omitted)

30. George Rolf, "Bolzano's Concept of Consequence," *Journal of Philosophy* 83: 558-564 (1986). Reprinted in: Dale Jacquette (ed.), *Philosophy of Logic. An Anthology*, Malden, Blackwell, 2002, pp. 205-209.
31. George Rolf, "Bolzano on Time," *Philosophia Naturalis* 24 (4): 452-468 (1987).  
 " (1) In the first volume of the *Wissenschaftslehre* Bolzano claims that "by the word 'time' we mean nothing but that particular determination in a real thing which is the condition for correctly attributing to it a given property." (1) He says that from this *all* properties of time can be deduced. This is supported by just one example, namely, that several contrary properties can be attributed to the same substance only on condition that times differ. This follows directly, since sentences with contrary predicates can be true only if their subjects differ. Hence one and the same substance can have contrary attributes only on the assumption that its time determinations are not the same. In Chapter 412 he maintains that a theory can have the status of a science even if its extent is very small. Consequently, he says, "the theory of time (the properties of time, not of the art of measuring it) deserves to be treated as a special science (i.e. the pure theory of time) although this science can consist of only a very few propositions." (2) Kant, he objects, should not have denied it the name of science for no other reason than its small extent.  
 (2) In the following chapter Bolzano adds that a theory need not be denied the status of a science even if everyone already knows its propositions. Again the theory of time serves as an example. He maintains that all theorems of the pure theory of time are obvious to everyone (*sind jedem von selbst schon bekannt*) (3) , but that it should be considered to be a science nonetheless. These are sweeping claims. Given the voluminous publications, the many controversies and the continuing interest in the subject of time they seem strange, even absurd. I begin by discussing these assertions, then add some reflexions on Bolzano on *time perception*, and end with a brief account of his criticism of Kant's views." (p. 452)

(1) WL I, 365. Citations follow the first edition.

(2) IV, 52.

(3) IV, 53.

32. George Rolf. Concepts of Consequence. In *Bolzano's Wissenschaftslehre 1837-1987. International Workshop*. Firenze: Leo S. Olschki 1992. pp. 3-26  
 "It has been held since antiquity that in all deductive argumentation there is a formal element or aspect. I wish to distinguish, and contrast, two ways of characterizing this. One of them I call «logic of schemata», or the «Received View», and the other, which was first articulated by Bolzano, «logic of variation». I shall investigate how these concepts of consequence succeed in addressing five concerns, not all of them logical issues, as we now understand logic, but connected with argumentative practice and certain epistemic matters.  
 (1) For the sake of completeness I mention first that a definition of consequence should fix a relation that satisfies certain formal requirements, i.e. a cut rule, thinning, and the like. There is a conventionally accepted set of these, described, e.g. by Gentzen. If a consequence relation shows deviations from this, it must be a reasoned difference that should be argued for. Also, a consequence relation (specifically logical, rather than enthymematic consequence) should be defined in such a way that first order predicate logic is strongly complete, that is, that if A is a consequence of a set of sentences X, then A should be deducible from X in a finite sequence of steps.  
 (2) A defensible definition of consequence should have the form, broadly, «If an argument satisfies this definition, it is valid, otherwise not». Contemporary definitions fail, as a rule, to satisfy the «otherwise not» clause. It is, however, argumentative practice to convict arguments of being formally fallacious. This can only be based on the assumption that if we have *fully understood* an argument, we can judge it to be valid or invalid - setting aside such esoterica as undecidable cases. I think it desirable that a definition of consequence allow an account of invalidity as well as validity.  
 (3) I shall consider a definition of logical consequence to be superior if it is broad enough to explain

why we concede merit to some formally invalid arguments enthymemes), but withhold approbation from others (gross non-sequiturs), that is, if it treats *logical consequence* as a special, though perhaps the most important and interesting, case.

(4) Arguments as presented in both informal and formal contexts can be ambiguous, even if they are constructed of unambiguous sentences, and even if they are couched in a language that stipulates a rigid distinction between logical and extralogical constants. I call an argument *naked* if all that is presented are premisses, conclusion, and an inference indicator, like «therefore». I shall maintain that when we understand an argument, we understand more than the sentences of which it is composed, and more than the unspecified claim that the conclusion *somehow* follows from the premisses. That is, we grasp more than the naked argument. If we fail in this, we may misconstrue arguments, which amounts to saying that naked arguments can be ambiguous. I suggest that an acceptable theory of consequence should allow us to bring into focus the problem of argument ambiguity.

(5) It is desirable that a concept of consequence, if it does not itself define a «relevant» relation, can at least be augmented so that it does. (A consequence relation is here called relevant if it stipulates or implies that premisses and conclusion share some element)." pp. 3-4.

33. George Rolf, "Bolzano's programme and abstract objects," *Grazer Philosophische Studien* 53: 167-180 (1997).

"Most of the Bolzano literature is exegetical, neglecting, unfortunately, the great potential of his logic as the beginning of a *Programme*. Specifically, his unorthodox construal of the consequence relation as triadic, and his account of logical form are promising beginnings which even as they stand shed light on question of relevance, the ancient problems of enthymemes and others. Instead of developing these suggestions, Bolzano scholars have been occupied with elucidating the ontology of sentences in themselves, and related topics. I argue, and believe to be in agreement with Bolzano, that the nature of sentences is fully explained by the relations that hold between them, just as money has no nature or essence beyond the transactions it makes possible. It follows that the development of his logic would contribute at least as much to the understanding of sentences than any exegesis."

34. George Rolf, "Psychologism in logic: Bacon to Bolzano," *Philosophy and Rethoric* 30 (3): 213-242 (1997).

"Various types of psychologisms are distinguished and historically discussed: reduction of logic to psychology in Beneke and others; replacement of (school) logic by an account of the actual workings of the mind in Locke, Hume; syllogistics as an adequate account of thought in Wolff; inadvertent psychologism is discussed in Kant and others. The end of psychologism in Bolzano's theory of propositions in themselves and their relations, etc."

35. George Rolf. *Anschauungen bei Kant und Bolzano*. In *Bernard Bolzanos geistige Erbe für das 21. Jahrhundert*. Edited by Morscher Edgar. Sankt Augustin: Academia Verlag 1999. pp. 129-144

36. George Rolf. Bolzano and the problem of psychologism. In *Husserl's Logical investigations reconsidered*. Edited by Fisetten Denis. Dordrecht: Kluwer 2003. pp. 95-108

"The *Theory of Elements* in the first two volumes of Bolzano's *Wissenschaftslehre* of 1837 "on which logic as a science must be built" (Husserl), is a historical first in avoiding all connection with psychological doctrine. It was then common to argue that specific "laws of thought" reflect what we can or cannot think. A brief account of the psychologism debate at the time of Husserl is followed by a survey of claims about psychology and logic in British Empiricism, Kant, Herbart and others. Then Bolzano's theory of "propositions in themselves" is discussed and justified."

37. George Rolf, "Intuitions," *Philosophiques* 30: 19-46 (2003).

"Kant impressed on the philosophical public the distinctions between sensations, intuitions and concepts. Bolzano followed him in terminology, but not in substance. This essay deals with Bolzano's astute and detailed critique of Kant, and then outlines his own theory. His famous propositions "in themselves", allowed him to discuss, with precision, the concepts of logical consequence, equivalence, analyticity, etc., and to escape from common logical psychologism. Intuitions are an exception. They are introduced with heavy reliance on mental activity and are *thought* -- they are episodes representing our direct empirical awareness -- and they indeed constitute the narrow door of Bolzano's philosophy of mind."

38. George Rolf. Intuitions: the theories of Kant and Bolzano. In *Semantik und Ontologie. Beiträge zur philosophischen Forschung*. Edited by Siebel Mark and Textor Mark. Frankfurt: Ontos Verlag 2004. pp. 319-354
39. Gieske Carsten Uwe, "Bolzano's notion of testifying," *Grazer Philosophische Studien* 53: 249-266 (1997).  
 "The notion of testifying (or testimony) is the central notion of Bolzano's theory of communication. In his *Wissenschaftslehre* (Theory of Science) Bolzano gives an analysis of this notion. It shows surprising parallels to Paul Grice's attempt to define "A meant<sub>NN</sub> something by x". I will begin with an explanation of some parts of the analysis and continue with an investigation of the relationship between Bolzano's analysis and that of Grice. In conclusion I would like to present some evidence supporting the hypothesis that several of the virtues of Grice's theory had already been developed by Bolzano, whose approach even has the advantage of a better definition than Grice's, as Bolzano's analysis provides a better basis for defining a notion of successful communication of information."
40. Gieske Carsten Uwe, "Bolzano über den Sinn von Wahrheit," *Zeitschrift für Philosophische Forschung* 55: 556-570 (2001).
41. Granger Gaston-Gilles, "Le concept de continu chez Aristote et Bolzano," *Études Philosophiques*: 513-523 (1969).
42. Grossmann Reinhardt, "Frege's ontology," *Philosophical Review* 70: 23-40 (1961).  
 Reprinted in: E. D. Klemke - *Essays on Frege* - Urbana, University of Illinois Press 1968, pp. 79-98.
43. Hafner Johannes, "Bolzano's criticism of indirect proofs," *Revue d'Histoire des Sciences* 52 (3-4): 385-399 (2000).  
 "The bearing of *Ableitbarkeit* and the compatibility requirement on the possibility of indirect proofs in Bolzano's logic has frequently been misconstrued. Without additional assumptions concerning the logical structure of indirect proofs and the relationship between proofs and *Ableitbarkeit* the compatibility requirement does not in general preclude indirect proofs. Bolzano's own objections to them are raised in the context of *Abfolge*, not *Ableitbarkeit*. Closer inspection shows that there are in fact two distinct criticisms in play. Identifying and analyzing them clarifies what exactly Bolzano views as the problem of indirect proofs."
44. Haller Rudolf, "Remarques sur la tradition sémantique," *Archives de Philosophie* 50: 359-369 (1987).
45. Haller Rudolf. Bolzano and Austrian philosophy. In *Bolzano's Wissenschaftslehre 1837-1987. International Workshop*. Firenze: Leo S. Olschki 1992. pp. 191-206  
 "It would be fruitful to compare in detail some of the formulations in Twardowski, Husserl, Meinong, Mier, and Kerry, with the original work of Bolzano, a task which cannot be done here. That we cannot rely in all cases on a clear-cut causal relation from reading Bolzano to the adoption of his arguments may not wonder us. To speak about an entire tradition is always a tricky thing, since traditions are not easily to be identified. But if we may use the expression 'tradition' then part of a philosophical tradition is that its main tenets recur in different writings and the same or at least similar methods are applied. The fact, however, that even the philosophers of the Vienna Circle claimed to be part of this tradition has been overlooked for a long time. After all, *logical empiricism* was only one of the labels they accepted. Neurath's preferred name «rational empiricism» is somewhat nearer to what was the significant principle of Austrian philosophy. It was the attempt to base the system of science on an ontology of objects. For both fields the tradition starting with Bolzano provided a good basis to build up a philosophical program. To investigate how many of the philosophers of this tradition came to similar conceptions under an influence of Bolzanoan ideas *without a wider knowledge of his work* and to *explain*, how at the same time we find a strong impact of this conception in different philosophers will remain a task for further research." (pp. 205-206).
46. Haller Rudolf. Bemerkungen über Bolzano und die österreichische Philosophie. In *Bernard Bolzano und die Politik. Staat, Nation und Religion als Herausforderung für die Philosophie im Kontext von Spätaufklärung, Frühnationalismus und Restauration*. Edited by Rumppler Helmut. Wien: Böhlau 2000. pp. 353-369
47. Kasabova Anita, "Is logic a theoretical or practical discipline? Kant and / or Bolzano," *Archiv für*

*Geschichte der Philosophie* 84: 319-333 (2002).

"Does logic describe something or not? If not, is it a normative or practical discipline? Is there a radical division between the practical or normative level and the theoretical or descriptive level? A discipline is theoretical, we may say, if its main propositions contain descriptive expressions, such as "is" or "have", but no normative expressions, such as "ought", "ought not" or "may". A discipline is normative if its main propositions are of the form "it ought to be". Theoretical propositions express what is, whereas practical propositions express what should be. So a theoretical discipline is descriptive and a normative discipline is prescriptive, but what does a theoretical discipline describe?"

48. Kasabova Anita, "Colour sensations and colour qualities: Bolzano between modern and contemporary views," *British Journal for the History of Philosophy* 12: 247-276 (2004).
49. Kasabova Anita, "Bolzano's Semiotic Method of Explication," *History of Philosophy Quarterly* 23: 21-40 (2006).
50. Kimberly Jaray, "Reinach and Bolzano: towards a theory of pure logic," *Symposium. Canadian Journal of Continental Philosophy* 10: 473-491 (2006).  
 "The work of Adolf Reinach (1883-1917) on states of affairs, judgment, and speech acts bears striking similarities to Bernard Bolzano's work in the area of general logic. It is my belief that these similarities suggest that Reinach used Bolzano's logical work to assist with his own. Three considerations support this view. First, Bolzano's work in *Die Wissenschaftslehre* (Theory of Science) was considered by Husserl to be the necessary foundation for any work in logic. Second, Bolzano's logic was a suitable alternative to Immanuel Kant's in that he formulated his essential relations as inexistent yet real, not Platonic or belonging to a transcendental realm. Third, Reinach did not openly criticize Bolzano in the manner he did the Austrians of the Brentano school, suggesting that Bolzano's logic was more complementary with his own. Due to his untimely death in 1917, Reinach's work on states of affairs and logic remains incomplete, some of it even lost or destroyed. I shall here offer a few brief remarks about Husserl as he was Reinach's mentor and friend, but an in depth discussion of the differences between Reinach and Husserl will not be offered in this paper. Secondary literature tells us that Reinach admired Husserl's *Logical Investigations*, in which phenomenology was said to concern itself with "primarily the discovery of the terra firma of pure logic, of the Sachen (things) in the sense of objective entities in general and of general essences in particular," and further "this phenomenology must bring to pure expression, must describe in terms of their essential concepts and their governing formulae of essence, the essences which directly make themselves known in intuition, and the connections which have their roots purely in such essences." These acts of discovering and describing essences or things themselves became the foundation of Reinach's realist ontology: things themselves surround us in the world and our access to them does not require a transcendental turn. It was precisely this realist foundation that allowed Reinach to develop and extend his phenomenological work to logic, legal philosophy, and speech acts as well. This conception of the nature and goal of phenomenology allowed Reinach and other phenomenologists a manner in which to analyze experience with its essential connections without either falling prey to psychologism or resorting to Platonism: phenomenology for them was truly a realist alternative."
51. Kluge Eike Henner, "Bolzano and Frege: some conceptual parallels," *Grazer Philosophische Studien* 10: 21-41 (1980).  
 "Bolzano's position on logic and his theory of sentences-in-themselves and their analysis, as well as his position on existence statements and subjective representations show a striking and profound similarity to Frege's theory of thoughts, his analysis of propositions, representations and judgement, as well as his position on the nature of logic in general. Bolzano's theories on these points, therefore, may well have been seminal to the development of Frege's position."
52. Konzelmann Ziv Anita, "Naturalized Rationality. A Glance at Bolzano's Philosophy of Mind," *Baltic International Yearbook of Cognition, Logic and Communication* 4: 1-21 (2009).  
 "Bernard Bolzano's philosophy of mind is closely related to his metaphysical conceptions of substance, adherence and force. Questions as to how the mind is working are treated in terms of efficient (causal) faculties producing simple and complex representations, conclusive and non-conclusive judgments, and meta-representational attitudes such as believing and knowing. My

paper outlines the proximity of Bolzano's account of "mental forces" to contemporary accounts of faculty psychology such as Modularity Theory and Simple Heuristics. While the modularist notions of domain specificity and encapsulated mental faculties align with Bolzano's allotment of domain specific tasks to correspondingly specified psychological forces (e.g. judging to "judgmental force", inferring to "inferential force" etc.), the emphasis of Simple Heuristics on accurate "fast and frugal" processes aligns with Bolzano's views regarding cognitive resources and the importance of epistemic economy. The paper attempts to show how Bolzano's metaphysics of mind supposes a conception of bound rationality that determines his epistemology. Combining the rationalist concern for epistemic agent responsibility in the pursuit of knowledge with a strong confidence in the reliability of causal processes to generate the right beliefs, his epistemology shows close affinities with contemporary Virtue Epistemology. According to Virtue Epistemology, knowledge requires that true beliefs be generated by reliable processes typical of a virtuous character. The thesis that Bolzano anticipates virtue epistemological considerations is corroborated by his discussion of heuristic principles that set the norms for the acquisition of knowledge. The paper explores possible relations between such principles and the presumed low-level heuristics of cognitive processes."

53. Konzelmann Ziv Anita. *Kräfte, Wahrscheinlichkeit und "Zuversicht". Bernard Bolzanos Erkenntnislehre*. Sankt Augustin: Academia Verlag 2010.
54. Krause Andrej. *Bolzanos Metaphysik*. München: Alber 2004.
55. Krause Andrej, "Are Bolzano's substances simple?," *American Catholic Philosophical Quarterly* 80: 543-562 (2006).  
 "This article analyzes one aspect of Bolzano's metaphysics. It discusses the question of whether, according to Bolzano, substances are simple or not. In the opinion of some commentators, he accepts composed substances, that is, substances having substances as proper parts. However, it is easily possible to misinterpret his position. This paper first tries to reconstruct Bolzano's definitions of the concept of substance and suggests that he should be able to agree with the following final definition: x is a substance if and only if x is real and not a property. After this, it is shown that, according to Bolzano, every substance is simple in a fourfold sense: No substance has (1) adherences as parts, (2) substances as proper parts, (3) spatially extended parts, and (4) temporal parts."
56. Krickel Frank. *Teil und Inbegriff: Bernard Bolzanos Mereologie*. Sankt Augustin: Academia Verlag 1995.
57. Künne Wolfgang. "Die Ernte wird erscheinen ..." Die Geschichte der Bolzano-Rezeption (1848-1939). In *Bolzano und die österreichische Geistesgeschichte*. Edited by Ganthaler Heinrich von and Neumaier Otto. Sank Augustin: Academia Verlag 1997. pp. 9-82  
 Reprinted in: W. Künne, *Versuche über Bolzano / Essays on Bolzano*, Sankt Augustin, Academia Verlag, 2008, pp. 305-404.
58. Künne Wolfgang, "Propositions in Bolzano and Frege," *Grazer Philosophische Studien* 53: 203-240 (1997).  
 Reprinted in W. Künne - *Versuche über Bolzano / Essays on Bolzano* - pp. 157-195.  
 "Bolzano's *Sätze an sich* and Frege's *Gedanken* are obviously close relatives. The paper underlines both similarities and dissimilarities between the psychological and semantical roles assigned to structured truth-evaluable contents in Bolzano's and Frege's theories. In particular, their different accounts of propositional identity are compared, and it is argued that Dummett's recent criticism of Frege's account is grist to Bolzano's mill."
59. Künne Wolfgang, "Substanzen und Adhärenzen. Zur Ontologie in Bolzanos *Athanasia*," *Logical Analysis and History of Philosophy* 1: 233-250 (1998).  
 "According to Bolzano, the actual (that which is capable of acting upon something) is either a substance or an adherence (an individual accident). In this paper I shall point out the source of inspiration for this ontological distinction in the Leibniz-Wolff school as well as its counterparts in the analytical metaphysics of our century, and attempt a systematic reconstruction. I shall then examine Bolzano's arguments for the following two ontological theses: (I) If there is any actual entity at all, then there is at least one substance, and (II) substances neither come into existence, nor do they cease to exist. Bolzano's decisive argument in favor of (II) proves to be indefensible (as can be shown with the help of his *Wissenschaftslehre*. The argument for (I), however, is of remaining

interest."

60. Künne Wolfgang. Über Lug und Trug. In *Bernard Bolzanos geistige Erbe für das 21. Jahrhundert*. Edited by Morscher Edgar. Sankt Augustin: Academia Verlag 1999. pp. 29-58  
Reprinted in: W. Künne, *Versuche über Bolzano / Essays on Bolzano*, Sankt Augustin, Academia Verlag, 2008, pp. 121-156.
61. Künne Wolfgang. Die Geschichte der philosophischen Bolzano-Rezeption bis 1939. In *Bernard Bolzano und die Politik. Staat, Nation und Religion als Herausforderung für die Philosophie im Kontext von Spätaufklärung, Frühnationalismus und Restauration*. Edited by Rumpler Helmut. Wien: Böhlau 2000. pp. 311-352  
Beiträge des Bolzano-Symposiums der Österreichischen Forschungsgemeinschaft und der Internationalen Bolzano-Gesellschaft 17./18. Dezember 1999, Wien.
62. Künne Wolfgang. Constituents of concepts: Bolzano vs. Frege. In *Building on Frege. New essays on sense, content, and concept*. Edited by Newen Albert, Nortmann Ulrich, and Stuhlmann-Laeisz Rainer. Stanford: CLSI Publications 2001. pp. 267-285  
Reprinted in: W. Künne, *Versuche über Bolzano / Essays on Bolzano*, Sankt Augustin, Academia Verlag, 2008, pp. 211-232
63. Künne Wolfgang, "Are questions propositions?," *Revue Internationale de Philosophie* 57: 157-168 (2003).  
Reprinted in: W. Künne, *Versuche über Bolzano / Essays on Bolzano*, Sankt Augustin, Academia Verlag, 2008, pp. 197-210
64. Künne Wolfgang. Bernard Bolzano's Wissenschaftslehre' and Polish analytical philosophy between 1894 and 1935. In *Philosophy and logic. In search of the Polish tradition. Essays in honour of Jan Wolenski on the occasion of his 60th birthday*. Edited by Kijania-Placek Katarzyna. Dordrecht: Kluwer 2003. pp. 179-192
65. Künne Wolfgang. Analyticity and logical truth: from Bolzano to Quine. In *The Austrian contribution to analytic philosophy*. Edited by Textor Mark. New York: Routledge 2006. pp. 184-249  
Reprinted in: W. Künne, *Versuche über Bolzano / Essays on Bolzano*, Sankt Augustin, Academia Verlag, 2008, pp. 233-303
66. Künne Wolfgang. *Versuche über Bolzano / Essays on Bolzano*. Sankt Augustin: Academia Verlag 2008.  
Inhalt: Geleitwort von Edgar Morscher 7; Vorwort 11; Bolzanos frühe Jahre 13; Die theologischen Gutachten in den Verfahren gegen den Professor and Priester Bolzano 67; Bolzanos oberstes Sittengesetz 103; Über Lug und Tug 121; Propositions in Bolzano and Frege 157; Are Questions Propositions? 197; Constituents of Concepts 211; Analyticity and Logical Truth: From Bolzano to Quine 233; "Die Ernte wird erscheinen..." Die Geschichte der Bolzano-Rezeption (1848-1939) 305; Literaturverzeichnis 405; Quellennachweis 449; Personenregister 451
67. Künne Wolfgang, "Bolzano et (le jeune) Husserl sur l'intentionnalité," *Philosophiques* 36: 307-354 (2009).

"In the "Prolegomena to Pure Logic" of his *Logical Investigations* (LI) Husserl praised the first two volumes of Bernard Bolzano's *Wissenschaftslehre* (WL) of 1837 as "a work which ... far surpasses everything that world-literature has to offer in the way of systematic contributions to logic". This paper is about the early Husserl as a reader of Bolzano's masterpiece, hoping thereby to contribute to a proper understanding of certain aspects of Bolzano's and Husserl's theories and of what those theories are about. I shall concentrate on the question how Bolzano in 1837 and Husserl around 1900 conceive of the contents of mental acts and states.

In sections 1-2 I report on the rediscovery of Bolzano's WL in the school of Brentano, and as regards the issue of objectless presentations, I endorse Husserl's defence of Bolzano against Twardowski. In sections 3-4 I present an outline of Bolzano's theory of propositions (*Sätze an sich*) and notions (*Vorstellungen an sich*) and go on to show how Husserl assimilates the Bolzanian framework in his LI. While Bolzano takes propositions and notions to be *sui generis* abstract objects, the early Husserl develops a species conception of notions and proposition. I explain this view in section 5 and defend it against Husserl's later self. The most extensive and most thorough discussion of a single contention in Bolzano's philosophy of logic that can be found in any of Husserl's books and articles published during his lifetime is contained in the last chapter of his LI.

The topic of this discussion, and of the final section of this paper, is a courageous if not outrageous Bolzanian contention: questions, he claims, are a special kind of propositions and hence truth-evaluable."

68. Lapointe Sandra, "Analyticité, universalité et quantification chez Bolzano," *Études Philosophiques* 4: 455-470 (2000).  
 "Jusqu'à maintenant, il semble qu'on n'ait pas établi de lien entre le rejet par Bolzano de la notation quantificationnelle des propositions universelles de la logique traditionnelle et l'articulation inédite de sa notion de validité universelle. C'est ce que je veux faire ici. En particulier, dans la mesure où l'analyticité est un cas spécial de la validité universelle, j'ai l'intention de défendre l'idée qui veut que la notion bolzanienne d'analyticité cherche à résoudre des problèmes qui sont intrinsèquement liés à la théorie traditionnelle de la quantification universelle tels qu'ils surviennent, notamment avec le traitement kantien de l'analyticité."
69. Lapointe Sandra. Bolzano's hidden theory of universal quantification. In *Logica Yearbook 2001*. Edited by Childer Timothy and Ondrej Majer. Prague: Filosofia. Publishing House of Prague Institut of Philosophy 2002. pp. 37-48
70. Lapointe Sandra. Bolzano et la réception de Kant en Autriche. In *Années 1781-1801. Kant. Critique de la raison pure. Vingt ans de réception*. Edited by Piché Claude. Paris: Vrin 2002. pp. 263-271
71. Lapointe Sandra, "Bernard Bolzano: contexte et actualité," *Philosophiques* 30: 3-19 (2003).
72. Lapointe Sandra, "Bernard Bolzano: Oeuvres," *Philosophiques* 30: 235-244 (2003).
73. Lapointe Sandra. Principe de priorité et principe du contexte chez Bolzano et Husserl. In *Aux origines de la phénoménologie. Husserl et le contexte des Recherches logiques*. Edited by Fiset Denis. Paris: Vrin 2003. pp. 93-110
74. Lapointe Sandra. Why Frege never read Bolzano. In *Logica Yearbook 2003*. Edited by Behounek Libor. Prague: Filosofia. Publishing House of Prague Institute of Philosophy 2004. pp. 183-194
75. Lapointe Sandra. Bolzano on grounding or why is logic synthetic. In *The Logica Yearbook 2005*. Prague: Filosofia 2006. pp. 113-126
76. Lapointe Sandra. Bolzano's semantics and his critique of the decompositional conception of analysis. In *The Analytic Turn*. Edited by Beaney Michael. London: Routledge 2007. pp. 219-234
77. Lapointe Sandra. *Qu'est-ce que l'analyse?* Paris: Vrin 2008.  
 En appendice la traduction française partielle de *Théorie de la Science* § 147-148 (pp. 92-298).
78. Lapointe Sandra, "Bolzano *a priori* knowledge, and the Classical Model of Science," *Synthese* 174: 263-281 (2010).  
 "This paper is aimed at understanding one central aspect of Bolzano's views on deductive knowledge: what it means for a proposition and for a term to be known *a priori*. I argue that, for Bolzano, *a priori* knowledge is knowledge by virtue of meaning and that Bolzano has substantial views about meaning and what it is to know the latter. In particular, Bolzano believes that meaning is determined by implicit definition, i.e. the fundamental propositions in a deductive system. I go into some detail in presenting and discussing Bolzano's views on grounding, *a priori* knowledge and implicit definition. I explain why other aspects of Bolzano's theory and, in particular, his peculiar understanding of analyticity and the related notion of *Ableitbarkeit* might, as it has invariably in the past, mislead one to believe that Bolzano lacks a significant account of *a priori* knowledge. Throughout the paper, I point out to the ways in which, in this respect, Bolzano's antagonistic relationship to Kant directly shaped his own views."
79. Lapointe Sandra. *Bolzano's Theoretical Philosophy. An Introduction*. New York: Palgrave Macmillan 2011.  
 Contents: Michael Beaney: Foreword VIII; Acknowledgements XI; Introduction 1; 1. Kant and German Philosophy 11; 2. Decomposition 18; 3. Meaning and Analysis 29; 4. A Substitutional Theory 43; 5. Analyticity 59; 6. *Ableitbarkeit* and *Abfolge* 72; 7. Justification and Proof 91; 8. *A priori* Knowledge 102; 9. Things, Collections and Numbers 116; 10. Frege, Meaning and Communication 128; 11. Husserl, Logical Psychologism and the Theory of Knowledge 139; Notes 158; Bibliography 170; Index 180-183.  
 "Bernard Bolzano (1781-1848) occupies a unique place in the history of modern philosophy. Born in the year in which Kant's *Critique of Pure Reason* was published and dying in the year in which

Frege was born, his philosophy - like his life - can be seen as offering a bridge between Kant's seminal work and the birth of analytic philosophy. In Bolzano's writings, one finds many of the characteristic themes of analytic philosophy anticipated. Like Frege and Russell after him, Bolzano was dissatisfied with Kant's account of mathematics and realised that a better conception of logic was required to do justice to mathematics. Bolzano's conception of logic was not Frege's or Russell's, but he did criticise traditional subject-predicate analysis, suggested that there was a fundamental form underlying all types of proposition and was insistent on the need to keep psychology out of logic. Like Frege, Bolzano construed existential statements as being concerned with the non-emptiness of appropriate 'ideas' (*Vorstellungen an sich* in Bolzano's terms) or 'concepts' (*Begriffe* in Frege's terms), and his conception of 'propositions' (*Sätze an sich*) is similar in many respects to Frege's conception of 'thoughts' (*Gedanken*). Like Frege, too, Bolzano emphasised that there is a class of entities, including both 'ideas'/'concepts' and 'propositions'/'thoughts', which are objective but not actual (*wirklich*), in the sense of not existing in the spatio-temporal realm.

Despite these similarities, however, Bolzano had no direct influence on any of the acknowledged founders of analytic philosophy. He had an influence on other German-speaking philosophers such as Franz Brentano, Benno Kerry, Edmund Husserl, Alwin Korselt and Kazimierz Twardowski, who themselves had an influence on the early analytic philosophers, both through correspondence and in their own publications (even if, often, mainly as a target of criticism). Through Twardowski, the founder of the Lvov-Warsaw school, he also had an influence on a whole generation of Polish logicians and philosophers, including Jan Lukasiewicz, Stanislaw Lesniewski and Alfred Tarski, who played an important role in the development of analytic philosophy. So a full account of the history of analytic philosophy must certainly pay attention to Bolzano's work. His significance, however, lies not just in these patterns of influence. The similarities and differences between his views and those of Frege, in particular, reveal much about the nature of analytic philosophy: the conceptions of analysis and logical form involved, for example, and key debates such as those about analyticity and other modal notions. These influences and connections are explored and elucidated by Sandra Lapointe in this book.

At the heart of Bolzano's logic - logic being understood in the traditional broad sense as including both methodology and theory of science (hence the title of Bolzano's major work, the *Wissenschaftslehre*) - lies his critique of Kant. As Lapointe explains in the first three chapters, Bolzano criticises Kant's theory of intuition and his decompositional conception of analysis. In doing so, Bolzano develops his own positive doctrines, concerning analyticity and logical consequence, in particular, based on a method of substitution, as Lapointe elaborates in Chapters 4-6. In the remaining chapters, further clarifying his semantic theory, she discusses his epistemological and ontological views and his connection with Frege and Husserl." (from the Foreword by Michael Beaney).

80. Laz Jacques, "Un platonicien débridé? Bolzano, critique de l'intuitionnisme kantien," *Philosophie* 27: 13-29 (1990).
81. Laz Jacques. *Bolzano critique de Kant. Suivi de Bernard Bolzano Sur la doctrine kantienne de la construction des concepts pa les intuitions*. Paris: Vrin 1993.
82. Majolino Claudio, "Variation(s) I. Bolzano et l'équivocité de la variation," *Études Philosophiques* 4: 471-488 (2000).  
"À partir d'une lecture comparée de certains extraits de l' *Einleitung zur Größenlehre* et de la *Wissenschaftslehre*, cet article se propose de reformuler l'ensemble de la réflexion bolzanienne sur le rapport entre objets effectifs et idéaux par le biais de la notion de "Veränderung". Plutôt que d'envisager la variation bolzanienne depuis la théorie des fonctions, elle doit être abordée d'abord par une réflexion sur le rapport entre variation et signe, puis entre substitution et mise en série de représentations, et enfin comme corrélat d'un acte de visée de multiplicités. Une telle reformulation impliquera la prise en compte d'une notion de devenir propre aux objets idéaux."
83. Mancosu Paul, "Bolzano and Cournot on mathematical explanation," *Revue d'Histoire des Sciences* 52 (3-4): 429-456 (1999).
84. Mangiagalli Maurizio, "Bernard Bolzano e l'idea di una logica pura," *Sapienza* 59: 459-466 (2006).
85. Mates Benson. Bolzano and ancient Pyrrhonism. In *Bolzano's Wissenschaftslehre 1837-1987*.

*International Workshop*. Firenze: Leo S. Olschki 1992. pp. 121-139

"Bolzano's attempt to refute so-called "radical" or "complete" skepticism is carefully described in Professor Berg's introduction to his edition of the *Wissenschaftslehre* (WL). Two forms of such skepticism are there distinguished. The thesis of the *ontological* form is

(1) No propositions (*Satz an sich*) is true

and that of the *epistemological* form is

(2) No judgment (*Urteil*) is true.

Bolzano's principle arguments against these are roughly as follows. Against (1) he argues that, for any proposition S, either S is true or the proposition that S is false is true. Therefore, at least one proposition is true. The argument against (2) is less clear. Bolzano (WL 40) takes the problem to be that of convincing a radical skeptic that, after all, he must recognize the truth of at least one proposition. After considering various possibilities, he concludes that the skeptic will have to accept as true at least the proposition that he has ideas (*Vorstellungen*), for obviously he confirms this proposition the moment he doubts or denies it. The point, I suppose, is that, just as one cannot doubt that there are men on the moon if one has no idea of what it is to be a man or to be on the moon, so the skeptic, if he has no ideas, is in no position to doubt anything, not even that he has ideas.

Bolzano thinks that while the skeptic might refuse publicly to admit the proposition in question, "nevertheless he will surely feel in his innards that it is true... and if he feels this, we have won".

Whatever one may think of these arguments, in this paper I am not concerned to evaluate them but only to consider whether they refute Pyrrhonism, as Bolzano seems to suppose." (pp. 121-122)

(...)

The root of Bolzano's failure to appreciate the force of Pyrrhonism is, in my opinion, that he does not realize that its self-referential aspect is essential. This aspect is not something that Sextus is reluctant to admit but is rather a feature that he emphasizes over and over again and that he obviously regards as crucial to the consistency of the skeptic's position. Bolzano's failure to understand this is especially evident at WL 40, where he quotes and discusses one of the many passages in which Sextus points out the self-reference of the skeptic's slogans (*phorai*), i.e., pronouncements like "contrary claims are equal", "no more this than that", "I decide nothing", etc. Bolzano says:

In setting forth the various formulae with which the skeptic is accustomed to express his state of doubt, Sextus Empiricus tries to employ maximal caution so as to protect it from the charge of self-contradiction, but nevertheless he finds himself compelled at the end to admit

"As concerns all the skeptic slogans the following must be understood in advance, namely that we do not maintain their truth in any absolute way, since we say that they themselves are included among the things to which they apply -- just as cathartic drugs do not merely eliminate humor from the body but also expel themselves along with the humors" (*Outlines of Pyrrhonism* I 206).

"This amounts to the reluctant admission", says Bolzano, that the skeptic ceases to be a skeptic as soon as he declares himself to be a skeptic. Only if he keeps silent and makes no judgment, not only in words but also internally, is he a complete doubter; and as long as this condition exists we *others* can say of him truly that he doesn't know a single truth. But as soon as he *himself* says it, the condition ceases and his judgment is therefore false.

But there is no "reluctant admission" here, and the Pyrrhonist doesn't have to be silent if he is to remain a Pyrrhonist. He will say "*It seems to me now that* contrary claims are equal" and "*It seems to me now that* there is no more reason for this than that", and so on. What he refrains from are flat out categorical statements, whether concerning his own skepticism or anything else.

It will be evident that this form of skepticism is not easily refuted. Since the Pyrrhonist agrees only to propositions expressing what *seems* to him at the moment to be the case, it is even unclear what a refutation would be like. But that is a topic for another day". (pp. 138-139).

86. Melandri Enzo. I paradossi dell'infinito nell'orizzonte fenomenologico. In *Omaggio a Husserl*.

Edited by Paci Enzo. Milano: Il Saggiatore 1960. pp. 83-120

87. Menne Albert. Extension und comprehension bei Peirce und Bolzano. In *Proceedings of the C. S. Peirce bicentennial International Congress*. Edited by Ketner Kenneth L. Lubbock: Texas Tech Press 1981. pp. 359-361

88. Miskiewicz Wioletta. "L'affaire Zimmermann". À propos des influences bolzaniennes dans l'École

de Lvov et de Varsovie. In *Aristote au XIXème siècle*. Edited by Thouard Denis. Lille: Presses Universitaires du Septentrion 2004. pp. 377-394

89. Morscher Edgar, "Zwei Typen von Systemen der traditionellen Logik," *Archiv für Geschichte der Philosophie* 50: 275-281 (1968).  
 "In this paper two different kinds of existential presuppositions in traditional logic are discussed. In the Aristotelian logic (1) the propositional function "some a is a" is always true (i.e. true for all substitutions of "a") and (2) the inference from "all a is b" to "some a is b" is valid. Modern logic does not contain either (1) or (2). In the logic of Bernard Bolzano (2), but not (1) is held. Therefore the existential presupposition in Bolzano's logic is weaker than that in Aristotelian and stronger than that in modern logic. (The reason for that difference between Aristotelian and Bolzano's logic lies in the different range of values for the variable "a": in the Aristotelian syllogistic the empty set is not a possible value of "a", however in Bolzano's logic the null set (or a "Gegenstandlose vorstellung an sich") is a possible value of "a". The reason for the difference between Bolzano's and modern logic lies in the different interpretation of "all a is b")."
90. Morscher Edgar. 'Philosophische Logik' bei Bernard Bolzano. In *Bolzano-Symposium 'Bolzano als Logiker', am 17. und 18. Dezember 1973*. Wien: Verlag der Österreichische Akademie der Wissenschaften 1972. pp. 77-105
91. Morscher Edgar. Von Bolzano zu Meinong: zur Geschichte des logischen Realismus. In *Jenseits von Sein und Nichtsein. Beiträge zur Meinong-Forschung*. Edited by Haller Rudolf. Graz: Akademische Druck - und Verlagsanstalt 1972. pp. 69-102
92. Morscher Edgar. *Das logische An-sich bei Bernard Bolzano*. Salzburg, München: Anton Pustet 1973.
93. Morscher Edgar, "Ist Existenz ein Prädikat? Historische Bemerkungen zu einer philosophischen Frage," *Zeitschrift für Philosophische Forschung* 28: 120-132 (1974).
94. Morscher Edgar. Bolzanos *Wissenschaftslehre*. In *Bernard Bolzano. Leben und Wirkung*. Edited by Christian Curt. Wien: Verlag der Österreichischen Akademie der Wissenschaften 1981. pp. 99-126
95. Morscher Edgar. Propositions and States of Affairs in Austrian Philosophy before Wittgenstein. In *From Bolzano to Wittgenstein. The Tradition of Austrian Philosophy*. Edited by Nyiri Janoc Cristof. Vienna: Hölder-Pichler-Tempsky 1986. pp. 75-85
96. Morscher Edgar, "Was existence ever a predicate?," *Grazer Philosophische Studien* 25/26: 269-284 (1986).  
 "The question "Was 'existence' ever a predicate?" in a way already suggests its own answer, that this is really the wrong question to ask, because 'existence' has always been a predicate. Even those, such as Kant, who supposedly opposed this view, in fact held it. They merely denied that 'existence' is a "normal" first-order predicate. Not only Kant, but also Bolzano, Frege and Russell claimed that it is a second-order predicate. There is substantive disagreement between Kant and Bolzano on the one hand and Frege and Russell on the other over two issues: the former claim that this second-order predicate applies to no concept analytically and that it can be properly ascribed to a singular concept, whereas the latter deny both of these claims."
97. Morscher Edgar, ""Hintertürln" für Paradoxien in Bolzanos Logik," *Philosophia Naturalis* 24: 414-422 (1987).
98. Morscher Edgar, "Bolzanos Syllogistik," *Philosophia Naturalis* 24 (4): 447-451 (1987).
99. Morscher Edgar. Propositions and all that: ontological and epistemological reflections. In *Logos and pragma. Essays on the philosophy of language in honour of Professor Gabriël Nuchelmans*. Edited by De Rijk Lambertus Marie and Braakhuis Henk A.G. Nijmegen: Ingenium Publishers 1987. pp. 241-257
100. Morscher Edgar, "Bolzano's "Method of Variation": Three Puzzles," *Grazer Philosophische Studien* 53: 139-165 (1997).  
 "Bernard Bolzano's most fruitful invention was his method of variation. He used it in defining such fundamental logical concepts as logical consequence, analyticity and probability. The following three puzzles concerning this method of variation seem particularly worth considering. (i) How can we define the range of variation of an idea or the categorial conformity of two ideas without already using the concept of variation? This question was raised by Mark Siebel in his M.A. thesis. (ii) Why must we define analyticity by means of (simultaneous or successive) variation of several ideas

rather than by means of replacing a single idea? This problem is suggested by an example due to W.V.O. Quine, John R. Myhi II and Benson Mates. (iii) Must every 'there is ...' sentence be synthetic for Bolzano, as his pupil Franz Prihonsky claims in his booklet *Neuer Anti-Kant*, or can a 'there is...' sentence be logically analytic?"

101. Morscher Edgar. Robert Zimmermann -- der Vermittler von Bolzanos Gedankengut? Zerstörung einer Legende. In *Bolzano und die österreichische Geistesgeschichte*. Edited by Ganthaler Heinrich von and Neumaier Otto. Sankt Augustin: Academia Verlag 1997. pp.
102. Morscher Edgar. Logische Allgemeingültigkeit. In *Bernard Bolzanos geistige Erbe für das 21. Jahrhundert*. Edited by Morscher Edgar. Sankt Augustin: Academia Verlag 1999. pp. 179-206
103. Morscher Edgar, "La définition bolzanienne de l'analyticité logique," *Philosophiques* 30: 149-169 (2003).  
 "A proposition is logically analytic according to Bolzano if and only if it is either logically valid or logically non-valid. And a proposition is sometimes said to be logically valid according to Bolzano if and only if it is true and remains true under all simultaneous and uniform variations of all of its nonlogical parts.  
 Basically, the same definition is provided by Quine in his paper "Carnap and Logical Truth" where he attributes to Carnap (and in a footnote also to Bolzano) the view that a logically true sentence is a true sentence which involves only logical words essentially. But, what about true propositions and sentences which are composed *exclusively* of logical parts? Due to the definition mentioned above, all of them will trivially turn out as logically valid or logically true. A proposition like "There is something", however, is clearly not logically valid according to Bolzano. The common definition of logical validity must be modified in order to match Bolzano's intuitions. In this paper, such a modification is presented."
104. Morscher Edgar. Sind alle wahren logischen Sätze logisch wahr? In *Bernard Bolzanos Leistungen in Logik, Mathematik und Physik*. Edited by Morscher Edgar. Sankt Augustin: Academia Verlag 2003. pp. 57-82
105. Morscher Edgar. The Great Divide within Austrian Philosophy. The Synthetic a Priori. In *The Austrian Contribution to Analytic Philosophy*. Edited by Textor Mark. New York: Routledge 2006. pp. 250-263
106. Morscher Edgar. *Studien zur Logik Bernard Bolzanos*. Sankt Augustin: Akademie Verlag 2007. Inhalt: Vorwort 7; Einleitung 11; I. Bolzanos Wissenschaftslehre 19; II. Bolzanos Definition der logischen Analytizität 47; III. Sind alle wahren logischen Sätze logisch wahr? 75; IV. Bolzanos Syllogistik 101; V. Inwiefern enthält Bolzanos Logik Existenzvoraussetzungen? 107; VI. Zwei Typen von Systemen der traditionellen Logik 113; VII. Was heisst es, dass ein logisches System "Existential Import" besitzt oder eine Existenzvoraussetzung macht? 121; VIII. Zur Frage der Existenzvoraussetzungen in der Logik 125; IX. Ist Existenz ein Prädikat? 135; X. Zu Bolzanos Lösung der Lügner-Paradoxie 149; XI. "Hintertürln" für Paradoxien in Bolzanos Logik 159; XII. "Philosophische Logik" bei Bernard Bolzano 169; Quellennachweis 199; Literaturverzeichnis 201; Personenregister 213.
107. Morscher Edgar. *Bernard Bolzano's life and work*. Sank Augustin: Academia Verlag 2008. Table of contents: Preface 9; Introduction 13; 1. Bolzano's life and scientific career 17; 2. Bolzano's removal from Office and the "Bolzano Trial" 23; 3. A short survey of Bolzano's work 29; 4. Logic 33; 5. Epistemology and philosophy of science 75; 6. Ethics 89; 7. Aesthetics 107; 8. Political and social philosophy 113; 9. Philosophy of religion and theology 125; 10. Metaphysics 135; 11. Philosophy of nature and of physics 139; 12. Philosophy of mathematics 141; 13. Metaphilosophy and history of philosophy 149; 14. The so-called Bolzano Circle and Bolzano's influence on the development of the sciences and on intellectual history 151; Appendix: A formal reconstruction of Bolzano's method of idea-variation and of his definitions of logical truth and of logical consequence 159; Bibliography 169; Index of names 207.

"Despite the enormous increase of interest in Bolzano's philosophy during the last decades, an up-to-date monograph on Bolzano's philosophy is still a desideratum. The last book that might be called a monograph on Bolzano's philosophy dates from almost 100 years ago; it is Shmuel Hugo Bergmann's *Das philosophische Werk Bernard Bolzanos* (Halle/S. 1909), written in the spirit of the

Brentano school, in particular of Bergmann's teacher Anton Marty.

When I was invited by the Editors of the Stanford Encyclopedia of Philosophy to contribute the entry on Bernard Bolzano, I took it as a challenge for starting my long-standing plan to write a monograph on Bolzano's philosophy. The present book is, to be clear, merely the first step toward this end. In this respect I can benefit from the generous copyright regulations of the Stanford Encyclopedia of Philosophy which allow the entries to appear also in print. The author welcomes any kind of comments and criticism to the present printed version of the Internet article in order to take them into consideration in his projected monograph on Bolzano's philosophy.

(...)

I dedicate this book to the greatest and most meritorious Bolzano scholar ever, Jan Berg, without whom Bernard Bolzano would not be seen as the outstanding philosopher as we now know him to be." (From the Preface)

108. Mourany Antoun-Hamid. *Logik und Wahrheit an Sich bei Bolzano*. Frankfurt am Main: P. Lang 1978.
109. Mugnai Massimo. Leibniz and Bolzano on the "Realm of Truths". In *Bolzano's Wissenschaftslehre 1837-1987. International Workshop*. Firenze: Leo S. Olschki 1992. pp. 207-220  
 "In his article *Propositions and Sentences* (1956) Alonzo Church pointed out -- on the basis of a suggestion made by Joseph Maria Bochenski -- that strong analogies exist between Bolzano's theory of *Satz an sich* and Gregory of Rimini's doctrine of *complexe significabile*.' In the same essay, Church also pointed out that Bolzano appealed to Leibniz as to a logician who plainly recognized propositions in the abstract sense. After Church's essay, it became very usual to mention Gregory of Rimini in reference to Bolzano's ontological conceptions. Nevertheless, we do not have any evidence of a direct influence of Gregory of Rimini's ideas on Bolzano's philosophy of logic. Bolzano seems to have only a limited acquaintance with the logic of the late medieval period: the credit accorded to Savonarola's *Compendium logicae* - a standard work which is absolutely lacking in originality - corroborates, I think, this view.<sup>2</sup> Yet Bolzano may have benefited by late scholastic inheritance through the intermediation of later works, like those of Campanella, Clauberg, Fonseca, Keckermann, Leibniz and Wolf.' In fact, as already mentioned, Leibniz is the first author whom Bolzano explicitly refers to, in paragraph 21 of the *Wissenschaftslehre*, as a forerunner of the *Satz an sich* theory:

"Thus Leibniz uses as equivalent the expressions *proposition* and *cogitatio possibilis* (*Dial. de Connexion inter Verba a Res* (C. I. Gerhardt, ed. *Philos. Schriften*, vol. VII, p. 190). This obviously presupposes that by propositions he meant propositions in themselves." (\*)

The Leibniz's work on which Bolzano explicitly bases this conviction is the *Dialogus de connexione inter res et verba*, first published by Raspe in 1765 -- a work whose content paradoxically seems to partly disprove Bolzano's interpretation.' Thus Church considers it «

"an exaggeration or a misunderstanding" on Bolzano's part to have attributed to Leibniz's *Dialogus* "the use of the word *propositio* for proposition in the abstract sense" or *Satz an sich*.<sup>(6)</sup> The same remarks are repeated by Prof. Berg in his monograph on Bolzano's logic: after having identified Bolzano's *Satz an sich* with Frege's *Gedanke*, Prof. Berg writes:

According to Leibniz a proposition (*propositio*) is a possible thought (*cogitatio possibilis*), which is capable of being true or false... But no thought or reasoning is possible without words or some other kind of signs. And under transformation of a proposition into a different language a certain relationship (*proportio*) among the signs and between the signs and the objective reality is transformed into a similar relationship. The last two conditions fit Aristotle's and Peter of Spain's but not Frege's notion of proposition. Therefore... it must have been a misunderstanding on Bolzano's part to have attributed to Leibniz the use of the word "propositio" for *Satz an sich*.<sup>(7)</sup>

In what follows, I intend to take up the problem of the correctness of the interpretation given by Bolzano and then to develop a comparison between the positions of Leibniz and those of Bolzano relative to the notions of idea, proposition and truth.

In the notes I have employed the following abbreviations: WL = B. Bolzano, *Wissenschaftslehre*, in

B. Bolzano, Gesamtausgabe, Reihe I, Schriften, Stuttgart-Bad Cannstatt, Friedrich Frommann Verlag 1985 ff; GP = G. W Leibniz, *Die philosophische Schriften*, Hrsg. von C. I. Gerhardt, Berlin, Akademie, 1857-90, vol. I-VII; VE = G. W. LEIBNIZ, *Vorausedition zur Reihe VI - Philosophische Schriften* - Munster, Akademie, 1982 ff.

(1) A. Church, *Propositions and Sentences*, in I. M. Bochenski, A. Church, N. Goodman, *The Problem of the Universals*, Notre Dame, Notre Dame Press, 1956, p. 3.

(2) WL 1, 11/1, pp. 105 ff.

(3) WL 1, 11/1, pp. 234 ff.

(4) WL 1, 11/1, p. 111.

(5) Cfr. *Oeuvres philosophiques latines et françoises de feu Mr. de Leibnitz ... publiees par Mr. Rud. Eric Raspe*, Leipzig, 1765, pp. 505-512.

(6) A. CHURCH, O. Cit., p. 10.

(7) J. BERG, *Bolzano's Logic*, Stockholm, Almqvist and Wiksell, 1962, pp. 51-52.

(\*) [cited in German in the original; I cite from the translation of *Wissenschaftslehre* by Rolf George, p. 24]

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