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Leibniz on Logic and Semiotics. Studies in English (Second Part: L - Z)

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2. Lenders, Winfried. 1971. "The Analytic Logic of G. W. Leibniz and Chr. Wolff: A Problem in Kant Research." *Synthese* no. 23:147–153.

3. Lenzen, Wolfgang. 1987. "Leibniz's calculus of strict implication." In *Initiatives in Logic*, edited by Srzednicki, Jan, 1–35. Dordrecht: Reidel
Translated in German and revised in: W. Lenzen, *Calculus Universalis* (2004) pp. 281-308.
"At first the title of this paper will provoke both logicians and Leibnicians to shake their heads: while talking about calculi of strict implication one rather associates it with the names of C. I. Lewis, W. Ackermann, or some other contemporary logician, but hardly with the 17th century philosopher G. W. Leibniz. Yet already some 30 years ago in an essay on "Leibniz's interpretation of his logical calculi" the well known Leibniz scholar, Nicholas Rescher (1954), had put forward the then bold thesis: in an interpretation that Leibniz himself had suggested, one of these calculi would become "a precursor of C. I. Lewis' systems of strict implication" (p.10), Unfortunately, Rescher did not give a factual justification of this prophetic view. Had it been done, it would have thrown some light on the real significance of Leibniz's logic. One reason for this omission consists, perhaps, in the fact that Rescher incorrectly interpreted the important logical constant 'est Ens', or, synonymously, 'est Res' or 'est Possibile' as logical necessity instead of logical possibility."
4. ———. 1989. "Concepts vs. predicates. Leibniz's challenge to modern logic." In *The Leibniz Renaissance. International Workshop, Firenze, 2-5 giugno 1986*, 153–172. Firenze: Olschki.
5. ———. 1989. "Arithmetical vs. "real" addition. A case study of the relation between logic, mathematics, and metaphysics in Leibniz." In *Leibnizian Inquiries: A Group of Essays*, edited by Rescher, Nicholas, 149–157. Lanham: University Press of America
"It is well known that in Leibniz's thought several interrelations exist between Logic, Mathematics, and Metaphysics. Logic and Mathematics have been linked together, e.g., in the attempts of April 1679 to develop a semantics of characteristic numbers for the theory of the syllogism (cf. C. 49-92). Logic and Metaphysics have been connected, e.g., by applying the principle "praedicatum inest subjecto" to the realm of monadology. This led Leibniz to the view of monads as self-sustained, complete entities which contain every truth not only about themselves but also about every other monad and which hence "mirror" the whole world. Mathematics and Metaphysics have been intertwined, e.g., by transferring the ideas of continuity and maximization to a theory about God's creation of the world. This culminated in the famous idea "Cum Deus calculat [...] fit mundus" (GP 7, 191). In this paper, however, I will neglect such great metaphysical speculations and concentrate instead upon a very specific relation between Mathematics and Logic, viz. the way in which Leibniz gradually derived an algebra of sets or, equivalently, an algebra of concepts from the ordinary algebra of numbers. In the 1st part the necessary mathematical background will be outlined. In the 2nd part I will show how the idea of "real" addition and subtraction evolved from the mathematical theory of + and -. It will turn out that a major reason why Leibniz thus discovered not the whole but only a part of set-theory is due to his "metaphysical" assumption that just as there are "privative objects" in the realm of numbers, there will also be "privative objects" in the realm of concepts or sets." (p. 149)
References
C = Couturat (ed.) *Opuscles et fragments inédits de Leibniz*.
GP = Gerhardt (ed.) *Leibniz - Die philosophischen Schriften*.
6. ———. 1990. "Precis of the history of logic from the point of view of the Leibnizian calculus." In *Estudios de Historia de la Lógica. Actas del II Simposio de Historia de la Lógica, Universidad de Navarra, Pamplona, 25-27 de Mayo de 1987*, edited by Angelelli, Ignacio and D'Ors, Angel, 13–38. Pamplona: Ediciones Eunat.
7. ———. 1990. "On Leibniz's Essay 'Mathesis rationis' (Critical Edition and Commentary)." *Topoi* no. 9:29–59.

8. ———. 1991. "Leibniz on privative and primitive terms." *Theoria.Revista de Teoria, Historia y Fundamentos de la Ciencia* no. 6:83–96
 "We first present an edition of the manuscript LH VII, B2 39, in which Leibniz develops a new formalism in order to give rigorous definitions of positive, of private, and of primitive terms. This formalism involves a symbolic treatment of conceptual quantification which differs quite considerably from Leibniz's "standard" theory of "indefinite concepts" as developed, e.g., in the "General Inquiries". In the subsequent commentary, we give an interpretation and a critical evaluation of Leibniz's symbolic apparatus. It turns out that the definition of privative terms and primitive terms lead to certain inconsistencies which, however, can be avoided by slight modifications."
9. ———. 2004. "Leibniz's Logic." In *The Rise of Modern Logic: from Leibniz to Frege*, edited by Gabbay, Dov and Woods, John, 1–83. Amsterdam: Elsevier Handbook of the History of Logic: Vol. 3.
10. ———. 2004. "Logical Criteria for Individual (concept)s." In *Individuals, Minds, and Bodies: Themes from Leibniz*, edited by Carrara, Massimiliano, Nunziante, Antonio-Maria and Tomasi, Gabriele, 87–107. Stuttgart: Steiner.
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13. ———. 2018. "Two days in the life of a genius." In *From Arithmetic to Metaphysics: A Path through Philosophical Logic*, edited by de Florio, Ciro and Giordani, Alessandro, 207–240. Berlin: Walter de Gruyter.
14. ———. 2018. "Leibniz and the Calculus Ratiocinator." In *Technology and Mathematics: Philosophical and Historical Investigations*, edited by Hansson, Sven Ove, 47–78. Cham, Switzerland: Springer
 Abstract: "This paper deals with the interconnections between mathematics, metaphysics, and logic in the work of Leibniz. On the one hand, it touches upon some practical aspects such as Leibniz's construction of a Four-species calculating machine, a mechanical digital calculating machine, and even a cipher machine. On the other hand, it examines how far Leibniz's metaphysical dreams concerning the "calculus ratiocinator" and its underlying "characteristica universalis" have in fact been realized by the great philosopher. In particular it will be shown that Leibniz not only developed an "intensional" algebra of concepts which is provably equivalent to Boole's "extensional" algebra of sets, but that he also discovered some basic laws of quantifier logic which allowed him to define individual concepts as maximally-consistent concepts. Moreover, Leibniz had the ingenious idea of transforming the basic principles of arithmetical addition and subtraction into a theory of "real" addition and subtraction thus obtaining some important building blocks of elementary set-theory."
15. ———. 2018. "Leibniz's Transformation of the Theory of the Syllogism into an Algebra of Concepts." In, edited by Sgarbi, Marco and Cosci, Matteo, 129–155. London: Bloomsbury Academic.
16. ———. 2019. "'Ex nihilo nihil fit': On Leibniz's "Principia Calculi rationalis"." *The Leibniz Review* no. 29:59–81
 Abstract: "In the essay "Principia Calculi rationalis" Leibniz attempts to prove the theory of the syllogism within his own logic of concepts. This task would be quite easy if one made unrestricted use of the fundamental laws discovered by Leibniz, e.g., in the "General Inquiries" of 1686. In the essays of August 1690, Leibniz had developed some similar proofs which, however, he considered as unsatisfactory because they presupposed the unproven law of contraposition: "If concept A contains concept B, then conversely Non-B contains Non-A". The proof in

- "Principia Calculi rationalis" appears to reach its goal without resorting to this law. However, it contains a subtle flaw which results from failing to postulate that the ingredient concepts have to be "possible", i.e. self-consistent. Once this flaw is corrected, it turns out that the proof – though formally valid – would not have been approved by Leibniz because, again, it rests on an unproven principle even stronger than the law of contraposition."
17. ———. 2019. "Leibniz's laws of consistency and the philosophical foundations of connexive logic." *Logic and Logical Philosophy* no. 28:537–551
Abstract: "As an extension of the traditional theory of the syllogism, Leibniz's algebra of concepts is built up from the term-logical operators of conjunction, negation, and the relation of containment.
Leibniz's laws of consistency state that no concept contains its own negation, and that if concept A contains concept B, then A cannot also contain Not-B. Leibniz believed that these principles would be universally valid, but he eventually discovered that they have to be restricted to self-consistent concepts.
This result is of utmost importance for the philosophical foundations of connexive logic, i.e. for the question how far either "Aristotle's Thesis", $\neg(\alpha \rightarrow \neg \alpha)$, or "Boethius's Thesis", $(\alpha \rightarrow \beta) \rightarrow \neg(\alpha \rightarrow \neg \beta)$, should be accepted as reasonable principles of a logic of conditionals."
 18. Levey, Samuel. 2002. "Leibniz and the Sorites." *The Leibniz Review* no. 12:25–49
Abstract: "The sorites paradox receives its most sophisticated early modern discussion in Leibniz's writings. In an important early document Leibniz holds that vague terms have sharp boundaries of application, but soon thereafter he comes to adopt a form of nihilism about vagueness: and it later proves to be his settled view that vagueness results from semantical indeterminacy. The reason for this change of mind is unclear, and Leibniz does not appear to have any grounds for it. I suggest that his various treatments of the sorites do not spring from a single integrated view of vagueness, and that his early position reflects a mercenary interest in the sorites paradox - an interest to use the sorites to reach a conclusion in metaphysics rather than to examine vagueness as a subject to be understood in its own right. The later nihilist stance reflects Leibniz's own (if undefended) attitude towards vagueness."
 19. ———. 2011. "Logical Theory in Leibniz." In *The Continuum Companion to Leibniz*, 110–135. London: Continuum.
 20. Lewis, Clarence Irving. 1918. *A Survey of Symbolic Logic*. Berkeley: University of California Press
See Chapter I. *The development of symbolic logic* pp. 1-117. (On Leibniz pp. 5-18 and *Appendix. Two fragments from Leibniz* pp. 373-388).
Reprinted New York, Dover Publishing 1960, with the omission of chapter V and VI.
 21. Look, Brandon C. 2010. "Leibniz's Metaphysics and Metametaphysics: Idealism, Realism, and the Nature of Substance." *Philosophy Compass* no. 5:871–879
Abstract: "According to the standard view of his metaphysics, Leibniz endorses idealism: the thesis that the world is made up solely of minds or monads and their perceptual and appetitive states. Recently, this view has been challenged by some scholars, who argue that Leibniz can be seen as admitting corporeal substances, that is, animals or embodied souls, into his ontology, and that, therefore, it is false to attribute a strict idealism to him. Subtler accounts suggest that Leibniz begins his philosophical career as an advocate of (some form of) the modern 'mechanical' philosophy and ends his career as an idealist, raising the issue when and why Leibniz adopts his monadological metaphysics.
This article argues that, given a constellation of metaphysical, logical, and theological views, Leibniz is committed to the ontological primacy of mind or form even in his 'middle years'."
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- and Cresswell, Max, 218–231. Cambridge: Cambridge University Press.
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On Leibniz: *Synthesis: Gottfried Wilhelm Leibniz*, pp. 178–182.
 24. Lourié, Basil. 2012. "Intensio: Leibniz in Creating a New Term for the Modal Logic." *Studia Humana* no. 1:59–65
Abstract: "It is still difficult to say what the main source of Leibniz's modal thinking was; at least, his acquaintance with the ideas of Spanish Jesuits about the "moral necessity" is to be dated to the epoch when the modal ideas already took shape in his mind. There was, however, one name normally referred to by Leibniz himself as his main predecessor in modal thinking, Richard Swineshead. In fact, Leibniz created his personal myth about Swineshead even before having read his works, and so, he attributed to Swineshead some of his own ideas, including the modal reinterpretation of the term *intensio* borrowed from the mediaeval physics."
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 26. MacDonald Ross, George. 1981. "Logic and Ontology in Leibniz." In *Truth, Knowledge and Reality*, edited by Parkinson, George H., 20–26. Stuttgart: Franz Steiner
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 29. ———. 2017. "Leibniz's Theory of Propositional Terms: A Reply to Massimo Mugnai." *The Leibniz Review* no. 27:139–155.
 30. ———. 2019. "Leibniz on the Logic of Conceptual Containment and Coincidence." In *Leibniz and the Structure of Sciences: Modern Perspectives on the History of Logic, Mathematics, Epistemology*, edited by De Risi, Vincenzo, 1–46. Cham (Switzerland): Springer Nature.
 31. ———. 2019. "The Peripatetic Program in Categorical Logic: Leibniz on Propositional Terms." *The Review of Symbolic Logic* no. 13:141–205
Abstract: "Greek antiquity saw the development of two distinct systems of logic: Aristotle's theory of the categorical syllogism and the Stoic theory of the hypothetical syllogism. Some ancient logicians argued that hypothetical syllogistic is more fundamental than categorical syllogistic on the grounds that the latter relies on modes of propositional reasoning such as *reductio ad absurdum*. Peripatetic logicians, by contrast, sought to establish the priority of categorical over hypothetical syllogistic by reducing various modes of propositional reasoning to categorical form. In the 17th century, this Peripatetic program of reducing hypothetical to categorical logic was championed by Gottfried Wilhelm Leibniz. In an essay titled *Specimina calculi rationalis* [*], Leibniz develops a theory of propositional terms that allows him to derive the rule of *reductio ad absurdum* in a purely categorical calculus in which every proposition is of the form A is B. We reconstruct Leibniz's categorical calculus and show that it is strong enough to establish not only the rule of *reductio ad absurdum*, but all the laws of classical propositional logic. Moreover, we show that the propositional logic generated by the nonmonotonic variant of Leibniz's categorical calculus is a natural system of relevance logic known as RMI $\neg\rightarrow$."

[*] Akademie Ausgabe Vol. VI, 4, n. 171, pp. 807–814.

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Chapter Three: Formalized versus Intuitive Arguments The Historical Background § 3. Leibniz on the mechanization of arguments, pp. 57-67.
35. Marciszewski, Witold, and Murawski, Roman. 1995. *Mechanization of Reasoning in a Historical Perspective*. Amsterdam: Rodopi
On Leibniz see: Chapter 3: *Leibniz' Idea of Mechanical Reasoning at the Historical Background*, pp. 77-112.
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Moriconi, Enrico. 2011. "Some Remarks on Negation and Quantification in Leibniz's Logic." *L&PS – Logic and Philosophy of Science* no. 9:247–253
Abstract: "We argue, with special reference to various passages from Leibniz's *Generales Inquisitiones*, that the simultaneous presence of two switches concerning the negation operator is the main source of the difficulties raised by many people against his logical investigations. The former switch carries negation from outside to inside of the proposition to which it is applied; the latter is the so-called obversion law (which asserts the equivalence of "non est" and "est non"). Applied in sequence, the two switches transform an outside (propositional or *de dicto*) negation into a conceptual (predicative or *de re*) negation. We also investigate the further difficulties which arise from the interplay between these switches and Leibniz's use of indefinite letters."
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"The object of this article is to show that the principle of contradiction in Leibniz is not the same principle that Aristotle called "the most certain of all principles". The five parts of this study are as follows: the first part shows the importance of the problem; the second is an *exposé* of Aristotle's thought on "the most certain of all principles." The third part treats of the principle of contradiction according to Leibniz; the fourth compares the thought of the two philosophers and draws some conclusions about the ramifications of their differences; the fifth part is a summary."
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Reprinted in: R. Woolhouse (ed.), *Gottfried Wilhelm Leibniz. Critical Assessments*, Volume I, New York: Routledge, 1994, pp. 256–289.
45. ———. 1989. "Necessity ex Hypothesi." In *The Leibniz Renaissance. International Workshop, Firenze, 2-5 giugno 1986*, 191–222. Firenze: Olschki.
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47. Moraschini, Tommaso. 2018. "A computational glimpse at the Leibniz and Frege hierarchies." *Annals of Pure and Applied Logic* no. 169 (1):1–20.
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Abstract: "The critical edition of *Generales Inquisitiones*, published in 1999 by the Berlin Akademie Verlag in the Vol. A VI 4A of the *Sämtliche Schriften und Briefe*, promoted new interests in Leibniz's logic, as witnessed by new translations and many specific and general papers devoted to these topics. Sometimes scholars stressed difficulties and also mistakes involved in the way Leibniz managed to treat 'negation', especially focusing on the questions arising from the interplay between that operator and the use of indefinite letters. We will discuss these difficulties, trying to find a rationale for Leibniz's 'mistakes' and, on the other hand, to draw some lessons from them."
49. Mortensen, Chris. 1997. "The Leibniz continuity condition, inconsistency and quantum dynamics." *Journal of Philosophical Logic* no. 26:377–389
Abstract: "A principle of continuity due to Leibniz has recently been revived by Graham Priest in arguing for an inconsistent account of motion. This paper argues that the Leibniz Continuity Condition has a reasonable interpretation in a different, though still inconsistent, class of dynamical systems. The account is then applied to the quantum mechanical description of the hydrogen atom."
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"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.² 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*.⁽⁶⁾ 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*.⁽⁷⁾

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, *op. cit.*, p. 10.

(7) J. Berg, *Bolzano's Logic*, Stockholm, Almquist 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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53. ———. 2002. "[Review of] Jean-Baptiste Rauzy, *La doctrine Leibnizienne de la vérité. Aspects logiques et ontologiques*." *The Leibniz Review* no. 12:53–64.
54. ———. 2005. "[Review of] Wolfgang Lenzen, *Calculus Universalis: Studien zur Logik von G. W. Leibniz*." *The Leibniz Review* no. 15:169–181.
55. ———. 2006. "On Leibniz's Logical Calculi." In *Logic and Philosophy in Italy: Some Trends and Perspectives*, edited by Ballo, Edoardo and Franchella, Miriam, 215–227. Monza: Polimetrica.
56. ———. 2010. "Logic and Mathematics in the Seventeenth Century." *History and Philosophy of Logic* no. 31:297–314.
57. ———. 2012. "Leibniz's Ontology of Relations: A Last Word?" *Oxford Studies in Early Modern Philosophy* no. 6:172–208.
58. ———. 2017. "[Review of] Marko Malink, Anubav Vasudevan, *The Logic of Leibniz's Generales inquisitiones de analysi notionum et veritatum*." *The Leibniz Review* no. 27:117–137.

59. ———. 2022. "Leibniz on Relations, Again. A Reply to Florian Vermeiren." *Studia Leibnitiana* no. 54:250–266
- Abstract: "In his article, Florian Vermeiren attributes to Leibniz – like other interpreters before him – the distinction of two different kinds of relations: 1) relations in the proper sense of the word as, for example, the fatherhood subsisting between Sophroniscus and Socrates, which Leibniz considers situated ‘outside the subjects’ involved; 2) relational properties, such as being a father, inherent in Sophroniscus. The distinction is clearly present in Leibniz’s writings. According to Vermeiren, Leibniz considers ‘purely mental’ only the relations ‘out of the subjects’ and not the relational predicates, by means of which, on the other hand, the individuals of the Leibnizian world would be truly related. In this sense, therefore, Leibniz would admit the reality of relations, which would play an important role in his ontology. At least since 1686 (the year in which he wrote the *Discourse*), however, Leibniz states that the world is made only of individuals with their internal modifications: just as there are no properties with a leg in one subject and a leg in another, there are no individuals bound together by any kind of material nexus or ‘real’ ties. Thus, if we make a list of all fathers on the one hand and sons on the other, there remains the problem of how to properly connect the fathers exactly with their sons. Attributing to each of two related individuals a relational property is not enough to connect them. Being a father in David must necessarily refer in some way to Solomon as a son. Leibniz is aware of this, as his attempts to analyze relational propositions in his essays on rational grammar show.
- Given the sentence ‘Cajus is killed by Titius’ for example, Leibniz attempts to reduce it to an inference between a pair of categorical sentences, each of which attributes a relational predicate to the subject. Relations (and relational properties) result from the substances and their modes, “without producing any change” of themselves but only in virtue of a consequence, that is of a logical inference. The image of the world derived so from the *Monadology* and other Leibnizian writings is that of a world composed of a collection of isolated individuals, independent of each other and lacking mutual connections. Relational properties correspond to internal modifications of each individual: the second term, in the case of binary relations (the ‘external’ one: Helen, if Paris loves Helen) is resolved into an internal representation (of Paris, in this case).
- It is God who coordinates the various representations of individuals with each other, to result in a harmonious whole. Since relations are a consequence of the existence of the individual substances with their intrinsic properties, God himself can be said to be the creator of relations, in so far as he calls the individuals into existence. And this is exactly what Leibniz states, in his commentary on Temmik’s book."
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- Reprinted in R. Murawski, *Essays in the Philosophy and History of Logic and Mathematics*, Amsterdam: Rodopi 2010, pp. 271–299.
- On Leibniz see § 6. *Leibniz and the Idea of characteristic universalis*, pp. 277–278 of the reprint.
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Chapter 11: *Leibniz' Logical Realism*, pp. 214-232.
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Reply to G.H.R. Parkinson, *Logic and Reality in Leibniz's Metaphysics* (Oxford, The Clarendon Press, 1965), pp. 17-22.
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Abstract: "Reasoning with diagrams is considered to be a peculiar form of reasoning.
Diagrams are often associated with imagistic representations conveyed by spatial arrangements of lines, points, figures, or letters that can be manipulated to obtain knowledge on a subject matter.
Reasoning with diagrams is not just 'peculiar' because reasoners use spatially arranged characters to obtain knowledge – diagrams apparently have cognitive surplus: they enable a quasi-intuitive form of knowledge. The present paper analyses the issue of diagrams' cognitive value by enquiring into the tradition of symbolic cognition developed by Leibniz, Lambert, and Kant. The proposal resulting from this enquiry is to question the idea that the cognitive value of diagrams lies solely in allowing evidence for inferences. The imaginative dimension of diagrams connects reasoning to doxastic attitudes of meditation and enquiry."
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Abstract: "I present a formal framework historically faithful to Leibniz's analysis of relational sentences, which: (i) engrafts thematic roles and the non-truth-functional connective insofar as (quatenus) into the monadic fragment of first-order logic; (ii) suggests a plausible ontological picture of thematic roles and relational facts ; (iii) supports argument deletion and related inferential patterns that are not taken into account by standard first-order logic."
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"1. The problem
Leibniz's impact on the emergence of mathematical (algebraic, algorithmic or symbolic) logic is an important topic for understanding the emergence and

development of the current views on logic.(1) However, the question whether Leibniz had any influence at all, or whether his ideas were not more than ingenious anticipations of later developments, is still disputed. The significance of this problem can be shown by referring to Louis Couturat who claimed that in respect to the logical calculus Leibniz had all the principles of much later logical systems of the algebra of logic (George Boole, Ernst Schroder) and in some points he was even more advanced than they (Couturat, *La Logique de Leibniz d'après des documents inédits*, Paris: Alcan 1901, 386). One important step in dealing with the problem can be seen in an answer to the question whether early "modern" logicians like Boole, Schroder, or Frege had had any knowledge of Leibnizian logic, i.e., could Leibniz have had any influence on these pioneers of modern logic?" (p. 13) (...)

6. Conclusions

No doubt, the new logic emerging in the second half of the 19th century was created in Leibnizian spirit. The essentials of Leibniz's logical and metaphysical program and of his idea concerning a logical calculus were available at least since the 1840s. Erdmann's edition of the philosophical works and Trendelenburg's presentation of Leibniz's semiotics were the most important steps towards the further reception of Leibnizian ideas among mathematical logicians at the end of the 19th century. As soon as these logicians were aware of the Leibnizian ideas they recognized Leibniz's congeniality and accepted his priority. However, the logical systems had already been established. Therefore there was no initializing influence of Leibniz on the emergence of modern logic in the 2nd half of the 19th century." (p. 22)

(1) For a full scale study on the topic see Peckhaus, *Logik, Mathesis universalis und allgemeine Wissenschaft. Leibniz und die Wiederentdeckung der formalen Logik im 19. Jahrhundert*, Berlin: Akademie-Verlag 1997.

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Abstract: "The article is an attempt at explaining the category of logical form used by Ludwig Wittgenstein in his *Tractatus logico-philosophicus* by using concepts from Gottfried Wilhelm Leibniz's *The Monadology*. There are many similarities and analogies between those works, and the key concept for them is the category of the inner and acknowledged importance of consideration based on basic categories of thinking about the world. The Leibnizian account allows for a broader look at Wittgenstein's analysis of the relation between propositions and facts, between language and the world. Using the Hanoverian philosopher's terminology allows for the demonstration of the ambivalence of the concept of logical form in the philosophy of Wittgenstein and also the metaphysical nature of his first book"
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Abstract: "This paper aims at sketching the impact of Aristotle's logic and metaphysics from Melanchthon to Hegel, a matter for which Leibniz plays a central role. Let me begin with Melanchthon. The three editions of his logic show a development from a Ciceronianism combined with Neoplatonism toward a recognition of the primacy of Aristotle. Like most Renaissance philosophers, though, Melanchthon felt a profound need of harmonizing Plato and Aristotle, whereby the latter, he said, should be considered for his clarity and the former for his depth."

"Leibniz's original source was the wide understanding of categories as ordines rerum of metaphysics, and finally was taken over both in Rhenius's logic and in Thomasiaus's logic and metaphysics." (p. 1025).

"As regards the role attributed to categories and forms, Hegel's program is in its essence truly Aristotelian, but it is also the consequence of Leibniz's particular twist to the history of Aristotle's impact on logic and metaphysics." (p. 1027).

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Reprinted in: N. Rescher, *Nicholas Rescher Collected Papers. Vol. 10: Studies in the History of Logic*, Frankfurt: Ontos Verlag, 2006, 141–157.
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"I have already observed that the explicit subordination of all other forms of opposition to contradiction is an element that Leibniz could have found in previous logical reflections. And it can be further observed, conversely, that traces of the more 'intuitive' treatment of opposition are still present in Leibniz. A field which seems of particular interest from this point of view is that of dynamics. All the terminological tools typical of the theory of opposition and discussed so far are, in fact, widely used by Leibniz in his writings on dynamics." (p. 183)
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Abstract: "In this note I discuss some issues around the law of Identity of Indiscernibles and, above all, its difference with the so-called law of indiscernibility of identicals. In this way I distinguish between the notions identity, sameness and equality, through a phenomenological discussion and using the key idea of intentionality. In order to formulate the Leibnizian law of Identity of Indiscernibles, and examine its validity, we need higher order logic. I will give semantic rules for a second-order logic with identity in the framework of the dialogical logic, introduced by P. Lorenzen. Then I will demonstrate the validity of the law of Identity of Indiscernibles by means of the introduced logic."
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taking up a cohered with the idea of mechanization of reasoning. It is therefore proper to present the greatest enthusiast every of this idea on the threshold of the contemporary science, who treated the idea of mechanization in reasoning very widely, assuming that every mind process can be expressed in some physical manner – Gottfried Wilhelm Leibniz."

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 "I examine what is probably Leibniz's most complete logical system and show that it is well- developed formal logic with a number of original and important features. Among other things, Leibniz discusses alternative interpretations of his system, provides detailed proofs of over twenty theorems about (what are now known as) semilattices and shows their relevance to logic, and he develops what is probably the first formal theory of the part- whole relation. I then show how Leibniz's system illuminates other aspects of his logic and philosophy, including his views on the structure of concepts and on infinite analysis."
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126. van Rijen, Jeroen. 1989. "Some Misconceptions about Leibniz and the Calculi of 1679." *Studia Leibnitiana* no. 21:196–204.
127. Vermeiren, Florian. 2022. "Questioning the Conceptualist Reading of Leibniz's Theory of Relations." *Studia Leibnitiana* no. 54:225–249
 Abstract: "This paper challenges Mugnai's conceptualist reading of Leibniz's theory of relations.
 I specifically question his idea that relational accidents are mental additions to absolute foundations. I examine some of the evidence on which he relies. Most importantly, I question his interpretation of Leibniz's rejection of purely extrinsic denominations (abbreviated "NPED") as stating that relations result from non-relational foundations. Mugnai thereby understands Leibniz's notion of 'extrinsic' as 'relational' or 'relative'. Such a reading contradicts both Leibniz's definition of 'extrinsic denominations' and the scholastic meaning of this notion."

Furthermore, Leibniz's use of NPED shows that some relations are intrinsic denominations.

Additionally, I argue that conceptual relations cannot do all the work in Leibniz's metaphysics.

Fundamental notions such as expression, order and, most importantly, coexistence rely on non-conceptual relations."

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 "During the past few decades the Leibnizian distinction between lingua universalis and calculus ratiocinator has proven to be a useful systematic tool for logic and philosophy of language. [...] In what follows, I take a closer look at how such philosophers as van Heijenoort, Goldfarb and Hintikka have profited from this old Leibnizian distinction." (p. 1313)
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135. ———. 1999. "Leibniz and Locke on 'First Truths'." In *Ideas and Mechanism: Essays on Early Modern Philosophy*, 353–372. Princeton: Princeton University Press.
136. Woleński, Jan. 2018. "Something, nothing and Leibniz's question. Negation in logic and metaphysics." *Studies in Logic, Grammar and Rhetoric* no. 54:175–190
 "This paper discusses the concept of nothing (nothingness) from the point of logic and ontology (metaphysics). It is argued that the category of nothing as a denial of being is subjected to various interpretations. In particular, this thesis concerns the concept of negation as used in metaphysics. Since the Leibniz question 'Why is there something rather than nothing?' and the principle of sufficient reason is frequently connected with the status of nothing, their analysis is important for the problem in question. Appendix contains a short critical analysis of Heidegger's famous statement *Das Nichts nichtet*."