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Abstract

For his colleagues at the BCL he was a continental philosopher, for his philosophy colleagues in Germany he was an American cybernetician, for the GDR ideologists he was a western metaphysical idealist and for the BRD philosophers he was a dialectical materialist. For the German New Left he was a logical positivist, for the positivists he was a Hegelian transcendentalist. For himself he was a transcendental logician but then discovered that he was a dialectical materialist, but in the sense of Lenin and Schelling emphasizing the heterarchical polycontexturality of grounds. In his thinking he didn´t accept any compromise, but for his special food he had to go to a lorry drivers inn. Günther was never a name in the singular, they had always been called The Günthers – Gotthard and Marie. He was a good friend of thinkers of very different origins like Ernst Bloch the Marxist philosopher at the time of his emigration in the USA and his main work Idee und Grundriss einer nicht-Aristotelischen Logik written in the 50´s was supported by the Platonist at Princeton, Kurt Gödel.

Günther himself was never involved in politics. He liked the clear sky and the fresh air of his gliding and skiing. In the fresh air of the wintry mountains of New Hampshire and focussed with only one eye, he was able to make distinctions which would have been confused by more disturbance. This was the place he found to his radical metaphysical and logical decisions about the future of thinking. Back from the mountains down in the cities there had been mismatches everywhere.

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Rudolf Kaehr [*]

Computation and Metaphysics

"There is little doubt that our present thinking-machines are
hardly more than wooden horses." *Gotthard Gunther*

Beyond Marxism and Cybernetics

Gotthard Günther (1900-1984) was a man and a thinker of the in-between and frontiers [1] . This was not the result of his emigration from Germany to USA - he was not a victim lacking a Heimat -- this was his decision as a result of radical thinking. However, he did not see himself as fitting within the contemporary movements of his time, rather he perceived himself as being much ahead of an arriving future.

Also one eyed he could see far more into the landscape of the future than most of us could ever see with three eyes.

For his colleagues at the BCL [2] he was a continental philosopher, for his philosophy colleagues in Germany he was an American cybernetician, for the GDR ideologists he was a western metaphysical idealist and for the BRD philosophers he was a dialectical materialist. For the German New Left he was a logical positivist, for the positivists he was a Hegelian transcendentalist. For himself he was a transcendental logician but then discovered that he was a dialectical materialist, but in the sense of Lenin and Schelling emphasizing the heterarchical polycontexturality of grounds. In his thinking he didn´t accept any compromise, but for his *special food* he had to go to a lorry drivers inn. Günther was never a name in the singular, they had always been called *The Günthers* : Gotthard and Marie [3]. He was a good friend of thinkers of very different origins like Ernst Bloch the Marxist philosopher at the time of his emigration in the USA and his main work "*Idee und Grundriss einer nicht-Aristotelischen Logik*" [4]written in the 50´s was supported by the Platonist at Princeton, Kurt Gödel.

Günther himself was never involved in politics. He liked the clear sky and the fresh air of his gliding and skiing. In the fresh air of the wintry mountains of New Hampshire and focussed with only one eye, he was able to make distinctions which would have been confused by more disturbance. This was the place he found to his radical metaphysical and logical decisions about the future of thinking. Back from the mountains down in the cities there had been mismatches everywere. [5]

With the "Hyäne des Pentagon" at the Checkpoint Charley

With his passion for skiing - he had to give up gliding -- he became an academic spy, even a double spy; at least their were some people who liked to believe that. After he became a professor emeritus in1972 he gave lectures in philosophy at the university of Hamburg and he made his home there. The Academy of Science in Berlin, former capital of GDR, wanted his secrets about the newest developments of US cybernetics as developed at the BCL -- they received from Günther a hard lesson about the necessity to change their dialectical materialism towards transclassical operational dialectics. The US Air Force paid his trip back to the wintry mountains. Some philosophical reports about cybernetics in Berlin (East) were delivered. The BCL was known only by a few specialists in the West as well as in the East in the 70´s. Today it is the source of the new German ideology:

Radical Constructivism, Second Order Cybernetics and Autopoiesis with Heinz von Foerster and Humberto Maturana as the leading figures. [6]

At this time -- I invited Günther to the Free University of West Berlin and accompanied him to his lectures at the Academy of Science -- we had a crucial point in common: both of us had to pass the mysterious Checkpoint Charley; now part of a museum. By passing this place of technological secrets Gotthard told me that he is a "Hyäne des Pentagon" (or that the other side told him this). I didn´t really understand, probably because I was hearing something sounding more like Princeton then Pentagon. I couldn´t believe that there could be any precious secrets at the Academy.

Also fully involved in multiple-valued logic and perfectly informed by the JPRS [7] Günther did not mention anything about the first implementation of a *ternary*computer in1958 by a Russian team at the Computing Center of the Moscow State University [8] but had to respond to a hard critique from the Moscow logician Alexander Zinovyev about some problems involved in his place-value system of logic [9].

Günther, a lifelong emphatic skier, earned his money as a research professor for the foundations and philosophy of computation and cybernetics [10]. Since the appearance of symbolic logic in the 30´s he was convinced that dialectics could only succeed and prove its supremacy over Aristotelian logic if it could find a formalism beyond all logical formalisms for its realisation [11]. He was one of the very first philosophical readers of the "*Introduction* " by the Polish logician Alfred Tarski. [12] Again that was in contradiction to the mainstream of German transcendental logic and philosophy. With the raise of Cybernetics in the USSR and its emphasis in the GDR by Georg Klaus, Manfred Buhr and Günter Kröber [13] there was a hope of some possible co-operations in the project of formalizing dialectics. After having given a lecture in Moscow Günther wrote one of his last works "*Identität, Gegenidentität und Negativsprache*" which tracks back to a lecture given 1976 in Belgrade. In this text Günther makes a step beyond the dichotomy of number and logos in introducing the concept of a new type of language for the notation of non-designational realities.[14]

We know at least since his book "*Das Bewusstsein der Maschinen*" [15] that Günther was proud to be on the payroll of the US Air Force Office of Scientific Research. This fact was surely one of the main reasons why he was totally ignored by the German New Left movement. I remember a wild night with some Maoist comrades in West Berlin. I told Alfred Sohn-Rethel, then a late member of critical theory, he just arrived from exile in Birmingham, U.K. that by the irony of history the real thinkers of dialectics are not in the revolutionary underground of a socialist country but at the BCL sponsored by the US Air Force.

Since the very beginning of his academic life Günther was interested in the philosophy of history. It is no surprise that there are several unpublished papers and book manuscripts about Russia and Marxism of the former USSR in his Nachlass [16].

"*Cybernetics and the Dialectic Materialism of Marx and Lenin*" [17] is not simply a literal translation of the german paper, from a lecture at the University of Cologne in 1964, but a transformation for the purpose of the US reader. And this English version also exists in several forms and intentions.

Das Bewusstsein der Maschinen" first published in 1957 and then in 1963 with a new chapter "*Idealismus, Materialismus und Kybernetik*" gave as some of his Western friends thought, dialectical materialism too much of a positive image. His answer was that he took both Apostel Paulus and Lenin with the same seriosness. When attacked by a readers-letter in *Astounding Science Fiction* he replied that it is more dangerous to be a metaphysician than to be a Marxist in the USA of today (McCarthy era).

With the Science (Fiction) Avantgarde

Gotthard Günther was always into techniques. Not only was he involved in the science fiction avant-garde with John W. Campell Jr. and published in *Astounding Science Fiction* and *Startling Stories* in the 50´s he also was the first to introduce American science fiction to Germany and he had a license for professional gliding and skiing [18]. All this was too early for the Germans and the books Weltraumbücher" published by Karl Rauch Verlag Düsseldorf 1952 had to be taken off the shelf. It was surely enormous luck but perhaps not a total surprise that Warren Sturgis McCulloch [19] discovered the importance of Günthers work for the logical foundations of cybernetics. He arranged for him a professorship at the BCL where Heinz von Foerster was the director.

Some years before "*Cybernetics and the Dialectic Materialism of Marx and Lenin*" Günther presented his fundamental work "*Cybernetic Ontology and Transjunctional Operations*" [20] on the 1st April 1962. Later published in the famous "*Self-Organizing Systems*" [21]. In this work he proposed a far-reaching formalization of dialectical und reflectional structures able to give a foundation for the implementation of subjective behaviours in machines. As a main step there is the formalisation of the transclassical operators of rejection and transjunction embedded in his morphogrammatics. With this background of polycontextural logic, his refutation of the whole alternative of idealism and materialism, which he had a deep knowledge of, and the design of a transclassiscal Worldview finally got its scientific foundation.

The Vietnam War and the End of Switching

When Günther was proposing machines capable of self-generating alternatives he was not only fully rejecting the alternative of Western idealism and Eastern materialism but trying to implement this same gesture into his idea of a trans-classical machine able of making refutations. His proposal "*A Study of new Development in Dialectic Theory in Marxist Countries and their Significance for the USA*" [22] ran in parallel to the complementary proposal for the "*Investigation of a Mathematical System for Decision-Making Machines*" [23].

Unfortunately lack of money and the need for more serious military R&D caused by the Vietnam War made a bitter end to this story [24]. After one last grant to complete the final archiving of the work done, the BCL closed in1976 with its "*BCL Publications*" [25].

> "On the other hand, a machine, capable of genuine decision-making, would be a system gifted with the power of self-generation of choices, and then acting in a decisional manner upon its self-created alternatives. (...) A machine which has such a capacity could either accept or reject the total conceptual range within which a given input is logically and mathematically located. It goes without saying that by rejecting it the machine displays some independence from the programmer which would mean that the machine has the logical and mathematical prerequisites of making decisions of its own which were not implied by the conceptual range of the programme. But even if we assume that the machine accepts affirmatively the conceptual context of the programme qua context, this is by no means the same as being immediately affected by the specifique contents of the programme that the programmer feeds into it. If we call the first attitude of the machine critical acceptance of the programme and the latter naive acceptance, then it mus be said that the difference of their handling a given input in both cases are enormous. In the first case a conceptual and therefore structural context is rejected this does not necessarily imply that also the specific content of the programme are rejected. They still may be accepted, but moved to a different logical or mathematical contexturality." [26]

As an expert in skiing, for whom water skiing was a perversion [27], Günther wanted at least to have a transclassical computer system able of reflection, cognition and volition in his studio before dying. Skiing was his obsession and to build a transclassiscal computer his profession [28] .

Computers in the sense of transclassical cybernetics are not simply a tool or a medium but much more a radical new step in the understanding and transformation of the world and human nature in a trans-terrestrial world game [29].

Computation and Metaphysics today

Questions of cracking identity in formal logical and computing systems are finally recognized now by leading computer scientists.

"Real-world computer systems involve extraordinarily complex issues of identity.

Dealing with such identity questions is a recalcitrant issue that comes up in every corner of computing, from such relatively simple cases as Lisp's distinction between eq and equal to the (in general) undecidable question of whether two procedures compute the same function.

The aim of the Computational Ontology project is to focus on identity as a technical problem in its own right, and to develop a calculus of generalized object identity, one in which identity - the question of whether two entities are the same or different -- is taken to be a dynamic and contextual matter of perspective, rather than a static or permanent fact about intrinsic structure." [30] Brian Cantwell Smith

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[1]   Gotthard Günther, Selbstdarstellung im Spiegel Amerikas, in: L.J. Pongratz (Hrsg.), Philosophie in Selbstdarstellungen Bd. II, Meiner Verlag, Hamburg 1975, pp. 1-76

[2]   BCL: Biological Computer Laboratory, University of Illinois, Urbana, Ill., USA, 1957-1976

[3]   Dr. Marie Günther-Hendel, jewish, teacher and founder of a Free school in Italy

[4]   Gotthard Günther, Idee und Grundriss einer nicht-Aristotelischen Logik, Meiner Verlag Hamburg 1959

[5]   Gunther-WEB: www.vordenker.de and www.thinkartlab.com

[6]   Realitäten und Rationalitäten, A. Ziemke, R. Kaehr (eds) , Selbstorganisation, Bd. 6, Dunker & Humblot, Berlin 1995

[7]   JPRS: Joint Publications Research Service, RAND Corporation, Santa Monica, Cal., USA

[8]   In 1958 the first full scale implementation of a ternary computer was completed by a Russian team at the Computing Center of Moscow State University, and named Setun´. It was used for some time, but both poor hardware reliability and inadequate software hampered its usage." Computer Science and Multiple-Valued Logic, (ed.) David C. Rhine, North-Holland, 1984, p. 7, cf. Cybernetics and the Dialectic Materialism of Marx and Lenin, footnote 18, this book.

[9]   Report on Zinovyev. In: Nachlass Gotthard Günther, 21. Kasten, Mappe 252, Staatsbibliothek Berlin

[10] Gordon Pask, The Originality of Cybernetics and the Cybernetics of Originality, 1982, cf. footnotes 25 and 29, this paper.

[11] Gotthard Günther, Logistik und Transzendentallogik, in: Beiträge zu einer operationsfähigen Dialektik, Bd. I, Felix Meiner Verlag, 1976

[12] A. Tarski, Einführung in die mathematische Logik, Verlag Jul. Springer, Berlin 1938

[13] Aus heutiger Sicht sind diese Versuche einer mathematischen Modellierung dialektischer Widersprüche bestenfalls von historischem Interesse. Sie haben weder die Philosophie noch die Kybernetik substantiell bereichert." K. Günter Kröber, Kybernetik als mathematische Theorie dialektischer Widersprüche, in: Kybernetik steckt den Osten an - Wiener's Ideen in Osteuropa und der DDR, Kolloquium der Gesellschaft für Kybernetik e. V., Nov. 2000; cf. http://www.kybernetiknet.de/

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[15] Gotthard Günther, Das Bewusstsein der Maschinen, Eine Metaphysik der Kybernetik, Agis Verlag, 2. Aufl., Baden-Baden 1963

[16] Gotthard Günther, Die amerikanische Apokalypse, Kurt Klagenfurt (ed.), Profil Verlag München, Wien 2000

[17] this book

[18] Phäidros und das Segelflugzeug. Von der Architektonik der Vernunft zur technischen Utopie. Gespräche mit Claus Baldus. In: Das Abenteuer der Ideen. Architektur und Philosophie seit der industriellen Revolution, Katalog zur internationalen Bauausstellung, Berln 1987, pp.69-88

[19] Gotthard Gunther, Number and Logos, Unforgettable Hours with Warren St. McCulloch. In: Selbstorganisation, pp. 318-348

[20] Gotthard Gunther, Cybernetic Ontology and Transjunctional Operations, Technical Report No. 4, Electrical Engineering Research Laboratory, University of Illinois, Urbana, Ill., Sponsored by: National Science Foundation, Grant 17414, Washington 25, DC.

[21] Self-Organizing Systems, M.C. Yovits et al (eds.), Spartan Books, Washington, D.C., pp. 313-392, 1962

[22] Gotthard Gunther, A Study of new Development in Dialectic Theory in Marxist Countries and their Significance for the USA, 13 pp., 1970

[23] Gotthard Gunther, Proposal for the Continuation of a Mathematical System for Decision Making Machines, Under Grant AF-AFOSR 68-1391 for One Year From 15 October 1970, July 31, 1970

[24] "But then came the Mansfield Amendment. Most of the early work on cybernetics had been supported by the Office of Naval Research and the Air Force Office of Scientific Research. But in about 1968 the Mansfield Amendment put an end to research projects supported by the Department of Defense which were not clearly related to a military mission. It was intended that the National Science Foundation and other agencies would pick up the support of projects that had been funded by DOD. The problem of course was that these agencies did not have people who were familiar with the work in cybernetics. There followed several frustrating years of searching for new sources of support. Meanwhile Ross Ashby and Gotthard Gunther had retired and left the University. Finally in 1975 Heinz retired and moved to California." Stuart A. Umpleby, Heinz Von Foerster, A Second Order Cybernetician. In: Cybernetics Forum, Vol IX, Fall 1979, N. 3, pp. 5-6

[25] BCL, The Complete Publication of the Biological Computer Laboratory, Wilson, von Foerster (eds.), Illinois Blueprint Corp., Peoria, Ill 61603, 1976

[26] Gotthard Gunther, Proposal for the Continuation, pp. 6-7

[27] Personal remark. I gave him a beautiful book about water skiing from the American thrift shop Berlin.

[28] Gotthard Günther, Lebenslinien der Subjektivität, Kybernetische Reflexionen, CD, c+p 2000 suppose, Köln 2000

[29] Gotthard Günther, Beiträge zu einer operationsfähigen Dialektik, Bd. I-III, Felix Meiner Verlag, Hamburg 1976 ff.

[30] Brian Cantwell Smith, SMITH-bio.html, 1999, cf. B.C. Smith, On the Origin of Objects, MIT Press, 1996