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In the Name of Paraconsistency

Francisco Miró Quesada Cantuarias(†)

Annotated and translated by
Luis Felipe Bartolo Alegre

Abstract

Logic systems that can handle contradictions were being used for some time without having a general technical name. One of the main proposers of these systems, Newton da Costa, asked Francisco Miró Quesada to suggest him a name for those systems. In the historical letter that here we translate into English for the first time, Miró Quesada suggests three names to da Costa for this purpose: 'ultraconsistent', 'metaconsistent', and 'paraconsistent'; explaining their pros and cons.

Keywords: naming logics, inconsistent systems, non-classical logics, heterodox logics, paraconsistent logics.

Introduction by the Annotator

Of all the contributions made by Francisco Miró Quesada Cantuarias to logic, the remembered one is his having coined the term 'paraconsistent' to designate those systems of logic that can handle contradictions. Ayda Arruda, for instance, says that "the term *paraconsistent logic* ... was employed by the first time in a lecture delivered by him at the [III SLALM] held at the University of Campinas, Brazil, in 1976" [1, p. 11].

Although the abstract of the talk was included in the report of the event [3, p. 354], the full paper was not published in the proceedings of this event [2]. We do not know exactly why, but it is possible that he did not send the final version of his paper for publication on time.[1] Unfortunately, it seems that the text of this talk is lost, although a translation into Spanish has been published [13], but which is little known outside Peru. This paper, however, was not the first document where Miró Quesada used the term.

[1]This opinion was expressed to me by Itala D'Ottaviano in a personal communication.

Aware of Miró Quesada's enthusiasm for coining names, Newton da Costa wrote a letter to his friend in 1975 asking him to suggest a name for the latter's logics of inconsistent formal systems. These logics were presented in English in 1974 [6], but they had already been developed extensively in a 'thesis of habilitation' for full-professorship that he wrote in Portuguese in the year 1963 [5].[2] In all those years, da Costa was not satisfied with the name that he was using, and was in the search for a generic name for these logic systems where the principles of non-contradiction and explosion are somehow restricted. It was in this search that he wrote to Miró Quesada:

> Several years ago, when I needed a convenient and meaningful name for a logic that did not eliminate contradictions as false from the outset, that is, as absolutely unacceptable, he came to my aid. ...
>
> I wrote to Miró Quesada, who viewed the new logic with enormous enthusiasm, asking him to suggest (coin, if necessary) a name for it. [7, p. 191]

Miró Quesada's response contained not just one, but three proposals for naming the logic systems pioneered by da Costa, and commented on the pros and cons of each of these proposals.

> I remember ... that he answered me, making three proposals: it could be called *metaconsistent*, *ultraconsistent*, or *paraconsistent*. After commenting on these possible names, he stated that he found the last one to be the best. To me, the word 'paraconsistent' sounded splendid, and I started using it, also insisting that everyone interested in the subject do the same. [7, p. 191]

Da Costa's insistence paid off, since less than one year after the date of this letter the term 'paraconsistent' was used in at least two talks precisely in the III SLALM: 'On paraconsistent logic' by Elias H. Alves and 'A paraconsistent infinitary propositional calculus' by Carlos Lungarzo [see 3, pp. 358–359].

Despite its current predominance as the technical term for this kind of logics, the term 'paraconsistent' has not been free of criticism. Moreover, some other terms have been proposed to replace it such as 'non-explosive' [4, p. 7], 'paratrivial' [10, p. 670], or even 'para*in*consistent' [15]. Although those proposals are interesting and worthy of consideration, Miró Quesada himself did not regard any of his proposals as optimal, and he had anticipated some of his critics in this very letter.

[2] This work is currently being edited and translated into English by Itala D'Ottaviano for the *Logic PhDs* series of College Publications.

For example, in showing his disagreement with the term 'paraconsistent', Walter Carnielli proposed the term 'metaconsistent' [10, p. 670] as an alternative. Miró Quesada had nevertheless already advanced the objection that, given that the prefix 'meta' is normally associated with 'metatheory' among mathematicians and philosophers, a metaconsistent logic would be perceived as a "logic relative to metalanguage" (p. 169).

Of course, I am not implying that 'paraconsistent' is the best possible name for these logics. In fact, a possible weakness of this term is placing consistency rather than explosion in the spotlight. This makes sense from Miró Quesada's standpoint, as he probably had in mind a logic that could serve as a formal tool for a philosophical position that rejected the law of non-contradiction. From the standpoint of current logicians, though, this would not make too much sense since paraconsistent logics are currently defined as those logics where the principle of explosion, or *ex contradictione sequitur quodlibet*, does not hold in general. As has been made clear several times, restricting this principle in a formal system logic does not require us to restrict the principle of non-contradiction in that same system. (Although it is up to debate whether, philosophically, the rejection of the *ex contradictione* implies the rejection of the principle of non-contradiction.)

In any case, although Miró Quesada had the first word on the naming of these systems, his open-minded and humble spirit hardly meant to have the last one. It is up to us what name or names will be used in the future, the most likely scenario being that different names will be used in different contexts or for different purposes. We may use 'paraconsistent' when referring to logics that restrict both the *ex contradictione* and non-contradiction; 'non-explosive' when referring to logics that only restrict the *ex contradictione* or when aiming at philosophical neutrality; 'metaconsistent' when—somehow confirming Miró Quesada's concerns—we want to convey that the metalogic is classical; 'paratrivial' when explosion is restricted in such a way that no trivialization can take place; and so forth.

But before proposing new names, let us learn from the master by reading the letter where he coined the name that most of us are currently using.

Acknowledgments

I want to thank Itala D'Ottaviano and Evandro Gomes for letting me print this letter, which was first discovered and scanned by them from Unicamp's archives. I also want to thank them, alongside José Carlos Cifuentes and Graham Priest, for their suggestions to improve my translation and annotations. Finally, I want to thank Francisco Miró Quesada Rada, our author's son, for authorizing me to print this letter.

UNIVERSIDAD PERUANA CAYETANO HEREDIA
CALLE HONORIO DELGADO
KM: 3.5 PANAMERICANA NORTE (CARRETERA ANCON)
TELEF. 815772 - AP. 5045
LIMA - PERU

Lima 29 de Setiembre de 1975

Querido Newton:

muchas gracias por la invitación a Campinas. Me acaba de escribir Lidya Arruda y, por supuesto, he aceptado. Pero como te dije en Lima, yo no me considero de ninguna manera un lógico, sino un filódofo informado. Sin embargo, tal como tu me hiciste ver las cosas, creo que, en el plano filosófico si puedo plantear cosas interesantes y que manejo la lógica lo suficiente como para poder decir algunas cosas originales desde el punto de vista de la filosoffía del conocimiento. He aceptado participar en las conferencias sobre lógicas no clásicas, porque creo que puedo decir algunas cosas de interés sobre la significación de la lógica de los sistemas inconsistentes para la filosofía del conocimiento. Pronto te escribo en detalle para que veas lo que pienso hacer. Como siempre tus sugerencias serán recibidas con júbilo.

Me halaga mucho que me consultes sobre el nombre que podía darse a la lógica de los sistemas inconsistentes. Es un problema que sería fácil si no fuera por la malduta carga semántica de las palabras. Creo que la ~~palabra~~ denominación ideal es "lógicas ultraconsistentes", porque "ultra" en latín significa más allá de . Acuérdate de las columnas de Hércules: Non plus ultra y del lema de los colónidas: plus ultra, es decir, más allá de las columnas de H-ércules. Tu eres un colónida de la lógica pues has rebasado la consistencia, has creado una lógica que va más allá de la consistencia pues se puede aplicar tanto a los sistemas consistentes como inconsistentes (evitando en este caso la trivialización. Lo malo es que "ultra" se utiliza hoy día como sinónimo de aumento sumamente intenso de una cualidad. De manera que "lógica ultraconsistente" da la impresión de ser una lógica que tiene una consistencia extraordinaria, una consistencia oleada y sacramentada. Poreso tal vez sería mejor decir" lógicas metaconsistentes" pues "meta" significa em griego más allá de , después de, o sea, más o menos lo mismo que ~~ultra~~ "ultra" (significa, además, otras cosas, pero con casos diferentes). Ade-

Figure 1: Scan of Francisco Miró Quesada's original letter (in Spanish) to Newton da Costa, September, 29, 1975, *recto* (SPCLEARQ, FNCAC, 147).

The Letter

Lima, September 29, 1975

Dear Newton:

thank you very much for the invitation to Campinas. [Ayda][3] Arruda has just written to me and I, of course, have accepted. But as I told you in Lima, I do not consider myself a logician in any way, but an informed philosopher. However, just as you made me see, I believe that I can propose interesting ideas on the philosophical domain, and that I handle logic well enough to be able to say some original things from the point of view of the philosophy of knowledge.[4] I have accepted to participate in the conferences on non-classical logics because I think that I can say some interesting things about the significance of the logic of inconsistent systems for the philosophy of knowledge. I will soon write to you in detail to show you what I intend to do.[5] As always, your suggestions will be received with joy.

I am very flattered that you consult me about the name that could be given to the logic of inconsistent systems. This problem would be easy if it were not for the damned semantic load of words. I think the ideal name is 'ultraconsistent logics', because 'ultra' in Latin means *beyond*. Remember the Pillars of Hercules, *non plus ultra*, and the motto of the Colónidas[6], *plus ultra*, that is, beyond the Pillars of Hercules. You are a Colónida of logic because you have gone beyond consistency, you have created a logic that goes beyond consistency because it can be applied to both consistent and inconsistent systems (avoiding trivialization in this case). The problem is that 'ultra' is used today as a synonym for *an extremely intense increase in a quality*. So 'ultraconsistent logic' appears to be a logic that has an extraordinary consistency, a done and dusted consistency. That is why it would perhaps be better to say 'metaconsistent logic', because 'meta' means in Greek *beyond*, *after*, that is, more or less the same as 'ultra' (it also means other things, but with different cases). Besides, it sounds very nice. It

[3]Miró Quesada mistakens Ayda Arruda's name—a major Brazilian logician who was a close collaborator of da Costa—by calling her 'Lidya'.

[4]This is not exactly an exhibition of false modesty by Miró Quesada, for he contributed much more to the philosophy of logic and "the knowledge field that" then "begun to be called 'philosophical logic'" [13, p. 9], than to logic itself [however, see 11, 12, 14].

[5]The event referred to is the III SLALM mentioned in our introduction [cf. 8].

[6]Miró Quesada possibly refers to the Peruvian literary movement *Colónidas*, which was developed between 1915 and 1916. This movement conceived itself as "a sequel to Columbus' work, a foot in a new world: that of the new literature" [17, p. 7].

UNIVERSIDAD PERUANA CAYETANO HEREDIA
CALLE HONORIO DELGADO
KM: 3.5 PANAMERICANA NORTE (CARRETERA ANCON)
TELEF. 815772 - AP. 5045
LIMA - PERU

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más suena muy bonito.Es cierto que es un barbarismo o mejor, un solecismo,pero ello no le hace,pues sociología también lo es. El defecto de "metaconsistente" es que "meta" se asocia en los medios matemático-filosóficos con"metateoría " y da la impresión de que se trata de una lógica relativa al metalenguaje. Pero,fuera de esta carga semántica,no vería yo ninguna objeción.

Hay,empero,otra posibilidad: utiliza "para" que en griego significa al lado de . "Lógicas paraconsistentes" suena bonito, un poco esotérico, da una idea más o menos precisa de lo que se trata(lógicas que no son como las clásicas,sino que quedan un poco al lado de ellas pues pueden aplicarse a sistemas inconsistentes) y tiene la ventaja de que no hay carga semántica deformante. Te propongo pues, a elegir,entre las tres denominaciones siguientes ,cuya precisión está en razón de su carga semántica negativa:

1) Lógicas ultraconsistentes
2) Lógicas metaconsistentes
3) Lógicas paraconsistentes

Ojalá que te guste alguna de las tres,me sentiría encantado de contribuir a bautizar a este tipo de lógicas que tienen tan grande importancia filosófica.

Pronto te escribo para contarte como fue el Congreso de Filosofía de Morelia,en el que tuve una activa participación, y para hablarte un poco de mis trabajos.Ah,y como creo ya haberte anticipado,quiero hacerte una consulta sobre la definición de número constructible.

Con un fuerte abrazo

Paco

Figure 2: Scan of Francisco Miró Quesada's original letter (in Spanish) to Newton da Costa, September, 29, 1975, *verso* (SPCLEARQ, FNCAC, 147).

is true that it is a barbarism or, better, a solecism, but this should be no problem, since so is 'sociology'. The defect of 'metaconsistent' is that, in the mathematical-philosophical circles, 'meta' is associated with 'metatheory' and gives the impression that it is a logic relative to metalanguage.[7] But, apart from this semantic load, I would see no objection.

There is, however, another possibility: use [the prefix] 'para', which in Greek means *next to*[8]. 'Paraconsistent logics' sounds nice, a bit esoteric, it gives a more or less precise idea of what it is about (logics that are not like the classical ones, but are a little *next to* them because they can be applied to inconsistent systems) and it has the advantage that there is no deforming semantic load. I thus propose you to choose between the following three names, whose precision is directly proportional to their negative semantic load:

1) Ultraconsistent logics

2) Metaconsistent logics

3) Paraconsistent logics

I hope you like any of the three, I would be happy to contribute to baptize this kind of logics that have such a great philosophical importance.

I'm writing to you soon to tell you how the Morelia Philosophy Congress went, where I had an active participation, and to talk to you a little about my works.[9] Oh, and, as I think I've already anticipated, I want to ask you a question about the definition of constructible number.

With a big hug,

Paco

[7]Here is the objection to the term 'metaconsistent' referred to in the preface.

[8]Notice that this is only one of the possible senses of 'para'. Consider what Graham Priest said about the time when Newton da Costa informed him that this was Miró Quesada's sense of 'para': "Until then, I had always assumed that the 'para' in 'paraconsistent' meant 'beyond', as in 'paranormal' and 'paradox' (beyond belief). Thus, 'paraconsistent' would be 'beyond the consistent'. I still prefer this reading." [16, p. 130]

[9]Miró Quesada refers to his participation in the I National Philosophy Colloquium organized by the Mexico Philosophical Association (UMSNH, Mexico, 4-9 August 1975). His participation was very important because, together with other distinguished participants such as E. Dussel, A. A. Roig, A. Villegas, and L. Zea, he co-authored a declaration called 'Philosophy and independence' [9] that was very representative of the spirit of this event.

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Francisco Miró Quesada Cantuarias (1918–2019)

Luis Felipe Bartolo Alegre
Facultad de Letras y Ciencias Humanas
Universidad Nacional Mayor de San Marcos (UNMSM)
Av. Universitaria cruce con Av. Venezuela
CP 15081 — Lima, Perú
E-mail: luis.bartolo@unmsm.edu.pe