

## Squaring Easter Island

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### Abstract

In this paper we describe the happening of the *5th World Congress on the Square of Opposition* in Easter Island, November 11-15, 2016, its relation with previous events of the series and the spirit of this series. We discuss why and how the event was organized in Easter Island, the atmosphere of the island, the talks presented there and the papers published in the present issue of the *South American Journal of Logic*.

**Keywords:** Square of Opposition, Hexagon of Opposition, Easter Island



## 1 SQUARE

This issue of the *South American Journal of Logic* contains papers presented at SQUARE 2016, which took place in Easter Island, November 11-15, 2016. This was the 5th edition of the *World Congress on the Square of Opposition*, following:

- 1st SQUARE: Hôtel Hélvétie, Montreux, Switzerland, 2007 (see [13] and [12])
- 2nd SQUARE: University Pasquale Paoli, Corte, Corsica, 2010 (see [11] and [5])
- 3rd SQUARE: American University of Beirut, Beirut, Lebanon, 2012 (see [14] and [9])
- 4th SQUARE: Pontifical Lateran University, Vatican, 2014 (see [7] and [10])

SQUARE is an event related to the square, as suggested by the name. Which square? Neither Times Square, nor Tienanmen square, nor the Round Square, but the Square of Opposition! One of the most famous squares in the world. The square of opposition is a logical structure coming from Aristotelian logic. It has been continuously studied during two thousand years. Even Frege, one of the main founders of modern mathematical logic, used it. It is a kind of eternal compass in the sky of thought.

This structure is interesting on the one hand in itself and can be generalized to other geometrical forms, on the other hand it can be applied to describe and understand phenomena of all kinds, ranging from sounds to colors through gods, traffic signs, quarks. The theory of opposition has a universal aspect.

SQUARE does not limit to the original square of opposition but is open to any figure of the geometry of opposition and their applications, in particular the hexagon promoted by Robert Blanché (see [15] and [3]). The reason why the name “SQUARE” is used rather than “Theory of opposition” or “Geometry of Opposition” (cf. [26]) is similar with mountaineering: it is more picturesque, not to say romantic, to speak about *Alpinism*. This brings to our mind nice images of the Mont Blanc with Horace-Bénédict de Saussure wondering around and above, or images of intellectual mountaineering, with Frege and Russell discussing if the Mont Blanc with all its snowfields is part or not of the thought that Mont Blanc is 4.000 meters high [21]. In the case of the Square, this brings to our mind, not only Aristotle walking in circles (or was it spirals?) in the Lyceum followed by hordes of Peripatetics, but also Apuleius riding his *Golden*

Ass from Carthage to Athens and Boethius writing *Consolation Philosophy* in jail before his skull was cracked to death by the Ostrogoth Theodoric.

Due to the many applications of the theory of oppositions, SQUARE is an interdisciplinary event, including not only all kinds of logicians, philosophical ones, mathematical ones, computational ones, semiotical ones, but also people who, despite being *logical animals* (*rational animals*, as they say in Rome) like everyone else, are not technically speaking considered as logicians: artists, physicists, economists, lawyers, psychologists, etc.

At the first SQUARE in Montreux there was a Square Jazz Show, with music composed using the oppositions of the square, and the projection of a movie, a remake of *Salomé* based on the square. Extracts of both are included in the DVD which comes together with the book related to this event [13].



## 2 Why Easter Island?

The runaway take-off of the SQUARE was Montreux. The reason being that the first author was at the time working at the *University of Neuchâtel* in Switzerland and that being of origin of the region of Montreux, he had decided to organize the *1st World Congress and School on Universal Logic* there in 2005 at Hôtel Hélvétie. The event was quite a success, everybody liked very much the place and it was decided to organize the 1st SQUARE in the same location in 2007.

We will not here recount the details of why and how the following editions of SQUARE were organized in Corsica, Lebanon and Vatican (for details see [8]), but, as it can be seen, these are kind of exotic or/and original locations. Easter Island makes perfectly sense from this perspective. There are other exotic locations: Antarctica, Mongolia, the Moon ... Maybe the SQUARE will one day be organized there.

The first author visited Easter Island on a *Round the World Trip* in 2004, making a stop for a couple of days in the Island, arriving from Tahiti and then going to Santiago, and he quite liked it. The second author is from Santiago of Chile and is one of the best specialists of the early history of the Square of Opposition. His university, the *Pontifical Catholic University of Chile*, agreed to sponsor the event provided there will also be some activities there. So it was decided to organize in Santiago a one day workshop after the main event in Easter Island.

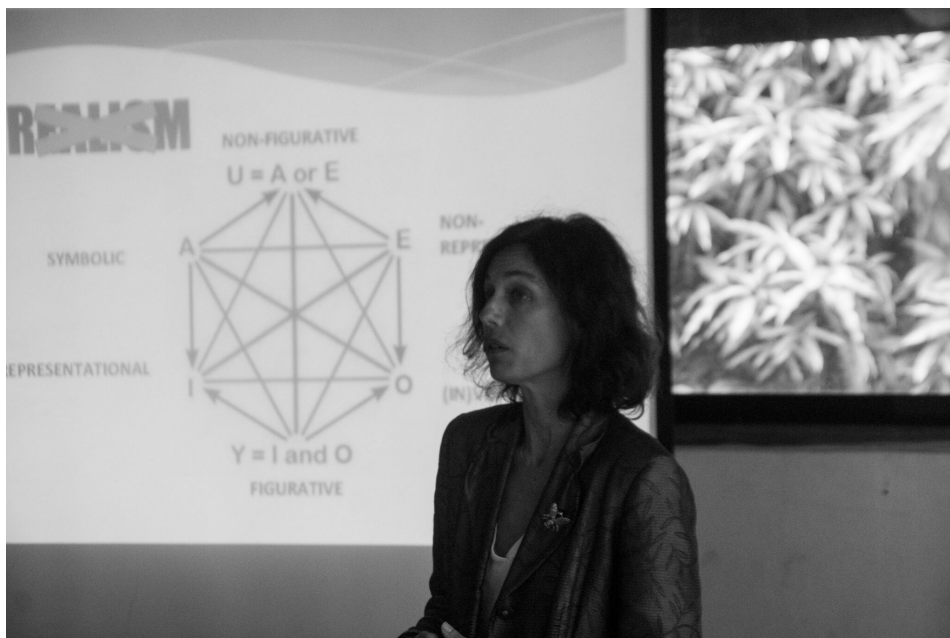
Easter Island can be seen from two diametrically opposite perspectives: it is at the middle of nowhere (point of view of a standard citizen of the world, say a Belgian), it is the centre of the world (point of view of indigenous people). This double perspective also exists for other locations: New York, Timbuktu, Mecca. Everything can be seen from different point of view ...

Anyway, the truth is that Easter Island is the most isolated island in the world. On the East the coast of Chile is at about 4.000 km, on the West the same with Tahiti. For this reason, the origin of the inhabitants is quite mysterious. Up to now there is no theory of evolution explaining how inhabitants could have emerged from such a small island itself, from stones, trees or herbs. The continental drift theory also seems difficult to apply here. So the idea is that the inhabitants came by boats or by flying saucers. In both cases there is still the question: from where? The Viking Thor Heyerdahl wanted to prove that they were coming from Peru. To prove that he constructed a boat, the Kon-Tiki, from material of this land available at the supposed time of their departure and, in the 1940s, successfully navigated from Peru to Easter Island (At our event we had the participation of another Viking, Frode Bjørdal, but he came by plane). This is of course not a final proof. Someone may one

day build a flying saucer with material from Mars and succeed to travel from Mars to Easter Island. Also, as we have noticed when being there, many indigenous people of the island were speaking French, so that's a good reason to believe that the inhabitants came by boat from the other side, Tahiti. In fact Easter Island has a little sister in French Polynesia, called *Rapa Iti*, which means "Small Rapa" and the name of Easter Island in the local language is *Rapa Nui*, meaning "Big Rapa".

Anyway, whatever their origin, the inhabitants of *Rapa Nui* are very friendly. To organize SQUARE'2016 we received support from the Major of the Island (and his staff of the *Alcaldia*), who graciously lent us a small school, several kilometers out of the village of Hanga Roa, where the event took place.

All those who came to SQUARE'2016 liked very much the Island. They were not too many, about 30, but coming from everywhere: Norway, USA, Poland, Chile, Brazil, India, Czech Republic, Mexico, Bulgaria, Germany, Italy, Japan, Belgium, China, France, The Netherlands. This was an interesting test to see the degree of survival of SQUARE. After this experience, we can plan to organize SQUARE in any location on Earth, and hopefully one day on Boole Crater on the Moon, headquarters of LUA - *Logica Universalis Association* (cf. [6]).



### 3 Variety of Topics

For this 5th edition of SQUARE, there were:

- Tutorials
- Keynote Lectures
- Contributing Lectures

This was the first edition of SQUARE with tutorials. There were three tutorials of 3 sessions (1h each), presented in three mornings: Nov 12, Nov 13, Nov 14. These three tutorials were:

- History of the Square of Opposition by Manuel Correia
- Introduction to Logical Geometry by Hans Smessaert
- Applications of the Square of Opposition by Jean-Yves Beziau

This corresponds to a trilogy typical of the SQUARE event:

- History
- Theory
- Applications

Note that this trilogy is not a triangle of contrariety, but rather a subcontrariety triangle.



The 12 papers ([19], [28], [4], [25], [18], [16], [24], [17], [22], [27], [20], [23]) gathered in the present issue reflect this variety. Not all the talks presented at SQUARE'2016 are included in this issue, only 11. And the 12th paper in the issue is a paper by Jens Lemanski [23] who planned to attend but at the end was not able to come.

We hope you enjoy the reading of this issue and may it inspires you for your work and participations of future editions of SQUARE.

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