

Workshop Oriental Logic August 30th- September 1st

Reconciliation of Eastern and Western ways of reasoning through intuitionist logic

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Laurence Horn remarked that the Eastern word “non-violence” is a double negated word not equivalent to an affirmative word; since in this case the double negation law fails, this word pertains to intuitionist logic¹. The same holds true for a doubly negated proposition without a semantically equivalent, affirmative proposition, as e.g. “the enemy of my enemy is my friend”, or Court’s sentence “Acquitted for insufficiency of evidence of guilty”.

I applied intuitionist logic in this way to oriental classical writings. The first is Sun Tzu: *The art of war*², the second is Gandhi: *Hind Swaraj*, 1909³. Both include doubly negated propositions whose sequences by themselves give back the entire meaning of the books. Moreover, Gandhi’s book includes also *ad absurdum* arguments, i.e. the only ones allowed in intuitionist reasoning.

These facts show that incorrectly West judges Eastern reasoning according to the viewpoint of classical logic only. Also because in ancient times also Western logical thinking was of the intuitionist kind, and then took a choice on a word which plays a crucial role in the logical thinking, i.e. truth. The ancient Greek word for truth was “ἀλήθεια (aletheia)” which is composed by privative α and λήθω = to be hidden; hence the meaning of this word is un-veiling., i.e. a double negation without an equivalent affirmative word. This original meaning was then changed (possibly by Plato) into the meaning of an abstract, eternal entity; instead of a process, a fixed idea in which to believe (in Italian the wedding ring is called “vera”, the feminine of “vero”, true). Afterwards, Greek logical thinking believed to make great improvements by bounding its logic to the only classical one (Aristotle), i.e. the logic assuring mechanical implications, as it occurs in syllogistic and in Euclid’s geometry.

Afterwards, Western culture chose classical logic in an exclusive way. Only exception was the introduction of the two basic dogmas of Christianity, a non-Western religion coming from the middle-East. Both are based on doubly negated propositions: 1) the definition of the double nature of Christ which was defined as “without mutation and without confusion”, “without separation and without division” (Calcedonian Council 451); 2) God is Trinity and at the same time is Unity; the “Athanasius’ creed” is full of double negations⁴. An easy solution of this divergence was to qualify these dogmas as contradictions of the religious thinking, that is as an irrational, a-logical thinking (although Nicholas Cusanus proved that one can argue in an accurate way outside of the logic of the “*Aristotelis secta*” (Aristotelian sect)⁵).

Yet, since the 19th Century the intuitionist logic re-appeared within the science itself through the original books of papers founding Lavoisier’s and Mendeleev’s classical chemistry, thermodynamics, Lobachevsky’s non-Euclidean geometry, Galois theory, Klein program on geometries, Einstein’s 1905 paper on special relativity, Einstein’s 1905 paper on quanta, the analogies and the idea of wave-particle complementarity – all being equivalent to doubly negated

1 Horn L.R. (1989), *The Natural History of Negation*, Chicago: Chicago U.P, p. 84.

2 Covone G. and Drago A. (2000), “L’Arte della guerra in Sun Tzu”, *Quaderni Asiatici*, n. 52, genn.-marzo, pp. 47-62.

3 Drago A. (2011), “*Hind Swaraj*: A birth of a new model of development”, in Silby K. Joseph e B. Mohandaya (eds.): *Reflections on Hind Swaraj*, Inst. Gandhian Studies and Gandhi International, Wardha, pp. 73-143.

4 Drago A. (2019), “Intuitionist reasoning in the tri-unitarian theology of Nicholas of Cues (1401-1464)”, *Journal of Logics and their Applications*, 6, n. 6, pp. 1143-1186.

5 Cusanus N. (1462), *De Non-Aliud*, Engl. Transl. in Jasper Hopkins’ site: <https://jasper-hopkins.info/>

propositions – on which was built the theory of quantum mechanics, Kolmogorov’s foundation of intuitionist logic, Markov’s theory of constructive numbers⁶ (Drago 2012).

I conclude that the West bounded itself to a narrow use of logic according to the most assured way of reasoning, in order to obtain an infinite number of logical results at the cost of disqualifying the religious thinking as irrational and to ignore the birth of an alternative logical method for building science; whereas. the recognition of intuitionist logic as a commonly used logic in both the everyday language and the scientific language introduces a pluralist view of logic, such as in the East was always present. The time is come to open Western thinking to allow intuitionist logic on the same par of classical logic – as the military strategists of East and West⁷ did - and hence to allow an effective pluralism of the kinds of logic, so to reconcile Eastern and Western ways of reasoning as sharing the same possibilities.

6 Drago A. (2012), “Pluralism in Logic. The Square of opposition, Leibniz’s principle and Markov’s principle”, in *Around and Beyond the Square of Opposition*, edited by J.-Y. Béziau and D. Jacquette, Basel: Birkhauser, pp. 175-189.

7 Drago A. and Pezzullo F. (2000), “Logica e strategia. Analisi della teoria di K. von Clausewitz”, *Teoria Politica*, 16, pp. 164-174.