

External and Internal in Geometry and Logic.

Lobachevsky believed that unlike other axioms of Euclidean geometry which were true *a priori*, the Axiom of Parallels was only (likely to be) true about our empirical world but might be false in a different possible («imaginary») world. His university colleague Vasilyev (1880-1940) applied the Lobachevsky's idea to logic by supposing that some logical laws (particularly *tertium non datur*) were empirical and hence might not hold in other possible worlds. The consistency of the Lobachevsky's suggestion remained doubtful until it was supported by Gauss' method of modeling non-Euclidean geometries as *internal* (otherwise called *intrinsic*) geometries of certain curved surfaces (considered in Euclidean 3D *external* space). Developing Vasilyev's ideas Smirnov (1931-1996) took a similar approach and put forward the concept of *combined logic* which combines *external* propositional logic with *internal* «logic of events» which supposedly serves to make a formal ontological account of a given model. Since the Gaussian method involves the distinction between *local* and *global* geometrical characteristics we might suggest that combined logics may serve to treat this distinction logically. In my talk I give a reinterpretation of the concept of combined logic based on Quine's idea of ontological relativity which suggestedly makes this possible.