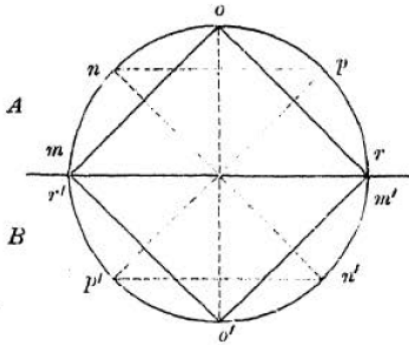


Nikolai Yakovlevich Grot | (1852-1899) | Finland – St Petersburg – Nezhin – Odessa – Moscow

Primary text: *Towards the Question about the Reform of Logic* (1882)

Excerpt 1: pp.48-57



- arcs $mn—no—op—pr$: sensation—perception/feeling—intention—movement/expression
- segments mo and $m'o'$ correspond to sensory “moments,” responsible for making impressions on consciousness, while segments or and $o'r'$ correspond to motor “moments,” responsible for acts in the world.
 - Note: B could be environment, in which case $m'o'$ is environment sensing, and $o'r'$ is environment acting
 - segments np and $n'p'$ schematize the boundary between subjective and objective moments
 - full revolution beginning at m : *action revolution* (деятельный оборот), while full revolution beginning at o : *affective revolution* (страдательный оборот)

Excerpt 2 : pp. 117-210

“Movements” are categorized into six different kinds: associative, dissociative, dis-associative; integrating, disintegrating, differentiating. Furthermore, the first three types of movements are classified into “mechanical” processes, the latter three into “organic” processes.



The *mechanical movements* are linear, while *organic movements* are closed shapes: circles, triangles, rectangles.

Syntax and rules:

Elements of unconscious cognition:

- $\alpha, \beta, \gamma, \delta, \dots$ (unconscious sensation)
- a, b, c, d, \dots (conscious sensation)
- A, B, C, D, \dots (concrete impression/conception)

Elements of conscious cognition:

- A, B, C, D, \dots (simple concrete impression/conception)
- $\mathbf{A}, \mathbf{B}, \mathbf{C}, \mathbf{D}, \dots$ (complex concrete impression/conception)
- $\mathcal{A}, \mathcal{B}, \mathcal{C}, \mathcal{D}, \dots$ (concrete concept)

Concatenation:

- for unconscious movements: $+, \pm, \times, \otimes$
- for conscious movements: $\cup, \circ, =, \#$
- for complex movements: $\odot, \ominus, \equiv, \#$

Nikolai Nikolaevich Lange | (1858-1921) | St Petersburg – Germany/France – Odessa

Text 1: *Summary of Doctoral Dispute of Professor Lange's dissertation "Law of Perception"* (1893)

Text 2: *Outlines of Lectures on Logic by Professor Lange, compiled by listeners of Women's Higher Courses* (1904-1905)

Excerpt 1: T1, p.578

“The process of perception consists in a quick change between a series of moments, in which each preceding moment represents a mental state of ever less concrete, more abstract nature, and each subsequent one — a state that is more particular and differential.”

Excerpt 2: T1, p.584

“...the logical content of judgments *is* the expression of the law of perception....Each preceding step of perception is, in full, subject for the next step, just like a predicate. Reception, as we have shown, in the first moment is just a push in the consciousness...; it is, then, in its own way possibility, substance, undefined dailyness (*bytie*), which receives its definition, its attribute, in the subsequent moment of perception... Here we find, then, an explanation of all three mentioned characteristics of subject (in assertions): it is substance, it is undefined dailyness and it is syntactic connection into a singular psychological act with the predicate.”

Excerpt 3, T1: p.593

“..the various steps of perception do not contradict each other, for judgments can never be negative.”

Excerpt 4, T1: p.595

Disputing the opposition between introspection and experiment: “...psychological experiment is, first of all, self-study, except one that is improved, methodical, regulated....In this sense, new experimental psychology – is not hostile to the English experimental psychology, but its natural enhancement and development.”

Excerpt 5, T2: pp.55-56

“On the other hand, in every opposite thing there is unity, every contradiction is capable of resolution. ... “human” is a radical opposite to “godly,” yet the resolution of this contradiction is the point of Christianity. ... This necessary transition of every finite thing and every finite concept into its opposite ... is the essence of Hegel’s dialectic ... of changing and developing actuality...”

“If only our thought was always truthful (*istinnaya*), then there would be no need in judgments with negation... negation is merely a subjective function, which does not have objective meaning”

“..From the logical point of view, the teachings of Hegel are only interesting for us about negation as the real power of antithesis, that is, as power, upon which world evolution is based.”

Points out that we must be careful in not mixing “contradictory with opposites. E.g. black and non-black, black and white; freedom and non-freedom, freedom and slavery, etc. The contradictory can be achieved purely with logic, while the opposite must be achieved empirically.” Taking the example of Thesis and Antithesis, if we say they are opposite, then they are not always contradictory, and their conjunction can be learned through experience only.”

Samuil Osipovich Shatunovsky | (1859-1929) | Kherson – St Petersburg – Switzerland – Odessa

Text 1: *Algebra as a study of comparisons* (1917, drafted 1905)

Text 2: *Regarding Postulates, lying at the foundation of the concept of magnitude* (1910)

Excerpt 1: T1 pp. v-vi

“...in every case, it is necessary to prove the right and the possibility to apply the law of excluded middle.”

Definition of logical unity:

“*predmet* A is called a *logical unity* relative to predicate or *predmet* B, if these *predmety* are defined in such a way that from the two statements ‘A is B’ and ‘A is not B’ one is accepted.”

Example: If we take statement A to be “line MN, that is parallel to line PQ” and we take B to be “sole line passing through M and parallel to PQ”, then we can’t choose “A is B” or “A is not B” until we understand whether we are in Euclidean geometry or in Lobachevsky’s geometry. That is, until we understand the context, and until we accomplish logical unity between the statement “line passing through a given point parallel to a given line” and the statement “sole line, passing through a given point parallel to a given line.” Without establishing this logical unity, application of LEM is absurd.

Excerpt 2: T1 pp. vii-viii

“...we must accept as insufficient all proofs of existence or nonexistence based on the law of excluded middle, if beforehand it is not proven, that subjects towards which the law is applied are in *logical unity* in relation to predicates, with which they are compared, or if the proof of the very possibility of applying the law of excluded middle demands an infinite number of steps or inferences.”

“...необходимо признать недостаточными все доказательства существования и несуществования, основанные на законе исключенного третьего, если предварительно не доказано, что предметы к которым этот закон применяется, суть логической еденицы в отношении сказуемых, с которыми они сопоставляются, или если доказательство самой возможности применения закона исключенного третьего требует бесконечного числа испытаний или умозаключений.»

Nikolai Aleksandrovich Vasiliev | (1880-1940) | Kazan

Imaginary Logic, collection of essays (1910-1912), 1989 edition (pub.Moscow)

including essays: “*About statements on particulars, triangle of opposites, and law of excluded middle*” and “*Imaginary Logic*”

Excerpt 1. “when I think “Some (not all) S are P”, I must also think at the same time: “Some (the rest) S are not P”; meaning, at once I think about all S’s, think that some of them are P, and others are not P, that is: “all S are either P or are not P”

Excerpt 2. “...it will suffice to say that imaginary logic without the law of contradiction is based on the introduction of direct negation, ‘perception of absence’. The imaginary logic would be real in a world with negative sensation, in the world with contradictory kinds of beings.”

Excerpt 3. “For inferences about facts and actualities—we use the law of excluded middle; for inferences about laws and concepts—we use the law of excluded fourth.”

Excerpt 4. “In general, the relation between any predicate and any subject (concept) is such that, either it is *necessary* (for example, for a triangle – closure), or it is *impossible* (for example, for a triangle – virtuousness), or it is *possible* (for example, for a triangle – predicate of equal-sidedness). Beyond these three possibilities, actually, there cannot be a fourth, and one of these three must hold in every instance.” The third scenario is called *indifferent*.

Excerpt 5: “Law of absolute difference of truth and falsity turns towards the knowing subject and disallows them to contradict oneself; ... For this reason this law can be called the Law of Non-Self-Contradiction (NSC).

On the other hand, the law of Non-Contradiction (NC) turns to the world, to objects, and says that contradictions cannot materialize in them, that in no single thing can contradictory predicates be united, cannot exist at once the bases for affirmative and negative inferences.... The law of contradiction has an objective meaning, a law of absolute distinction between truth and falsity - subjective. So it is clear, that it is possible, without breaking the law of ...non-Self Contradiction, to break or reject the law of Contradiction. If I will claim, that this *NN* is and is not a person, then I, of course, will break the law of [Non-]Contradiction, but if I will claim this always and will be firmly planted in this, without contradicting myself, then I will not break the law of Absolute difference and of truth and falsity. ... [Imaginary Logic] never contradicts itself and presents a system devoid of self-contradictions.” (64-65)

Excerpt 6: “Objects of logic are of a dual kind: of actualities (perceptions and ideas) and of concepts. If the actualities (perceptions) are the matter of a logical world, then concepts are its spirit (дух), its cognizing souls (познающими душами). Between actualities and concepts there is the same mysterious parallelism in the logical world as there exists in the universe between matter and spirit. Concepts symbolize, cognize actuality, like the spirit cognizes and symbolizes matter.” (48)

Excerpt 7: “There can be many worlds, but the *essence of dailyness* (*suschnost’ bytiya*) is the same... There may be many logics, but they all have **metallogic** in common and singular, a science about the formal side of reasoning, about reasoning that stands apart from all content of the thought.”

Pavel Aleksandrovich Florensky | (1882-1937) | Armenia – Moscow – Nizny Novgorod – Baikal – SPB

Text 1: *Pillar and the Ground of Truth* (1914)

Text 2: *Mnimosti in Geometry* (1922)

Text 3: *Iconostasis* (1922)

Excerpt 1 (T1): Axiom of antinomy: $\neg p \supset p \supset p$

Proof: We can rewrite $\neg p \supset p$ as $\neg(\neg p) \cup p$ by the definition of implication. But $\neg p(\neg p) = p$ by double negation, and so $\neg p \supset p = p \cup p$. The right hand side must be p , as in $p \cup p \supset p$, and so we get the desired statement.

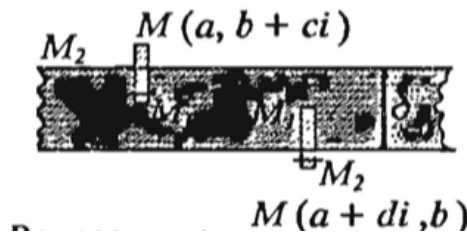
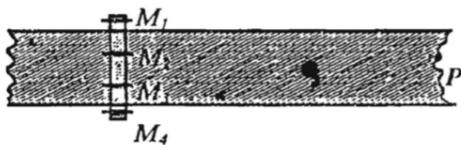
Alternate formulation of antinomy: $P = (p \cap \neg p) \cap V(X)$

Final formulation of antinomy: $[(\neg p \supset p) \cap (p \supset \neg p)] \supset [(p \cap \neg p) \cap \neg \Lambda] = P$

Excerpt 2 (T1): Antinomy is the kind of statement that, being truthful (*istinnyy*), contains in it both the thesis and the antithesis, so that no objection is possible.

Truth (*Istina*) is antinomy.

Excerpt 3 (T2): pp.42, 51



Type	Title	Example
I	Real	(2,3)
II	semi-mnimyie	(2, 3i) or (2i, 3)
III	mnimyie	(2i, 3i)
IV	semi-complex	(2, 3+5i) or (2+6i, 5)
V	complex	(2+6i, 3+5i)
VI	mnimo-complex	(2+6i, 3i) or (6i, 3+5i)

“We can imagine all space as dual, composite of real and, corresponding to them, *mnimye* Gaussian coordinates on a surface, but the transition from the real surface to the *mnimaya* surface is possible only through breaking space and “turning the body inside out” of itself.”

Ivan Yefimovich Orlov

(1886-1936)

Galich – Moscow – ?

Text: *Calculus of Compatibility of Sentences* (1928)

Georges Vasilievich Florovsky

(1893-1979)

Odessa – Prague – Paris – New York – Cambridge, MA

Text: *Sketches Towards Relative Logic* (1924)

Andrey Andreyevich Markov, Jr

(1903-1979)

St Petersburg – Moscow

Ivan Sleshinsky or Jan Śleszyński

(1854 – 1931)

Lysianka – Odessa – Berlin – Odessa – Krakow