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DIALECTICS AND LOGIC

The present topic is a historical one in two ways: firstly because I want to present briefly the situation in logic in the time when the modern logic became actual in our midst; secondly, because the questions concerning the relationship between Marxist dialectics and logic belong to history, i. e. no one works on such problems today. Since in the first years, after the liberation from the German occupation the influence of Soviet philosophy on ours was decisive, at first we shall remind us what was the matter with logic in the case of that philosophy. After the October Revolution the traditional Aristotelian logic was not taught at faculties of philosophy, it was viewed as something bourgeois and obsolete. In 1941 formal logic started to be discussed on the pages of journal "Voprosy filosofii" which was continued till 1951. This discussion resulted in two main reasons for some kind of "rehabilitation" of formal logic: 1) According to Engels, his "Dialectics of Nature", the relationship between logic and dialectics is analogous to that between elementary and advanced mathematics. 2) In analogy with Stalin's opinion that language is a general creation of mankind it was claimed that formal logic generally belonged to the mankind, i.e. it had no class origin and character. In those years first university textbooks on traditional formal logic appeared (Asmus) and it was included in teaching at faculties of philosophy in the USSR. As for modern logic, in the USSR it was not present at faculties of philosophy before 1957, instead it was studied and taught at faculties of mathematics (Kolmogorov, Markov, Mal'tsev, Novikov). In our midst Professor Dušan Nedeljković (who taught all philosophical subjects at the Faculty of Philosophy in Belgrade) taught traditional logic as "subjective dialectics" following largely Hegel's concept and criticism of formally logical laws. At the Foundation Assembly of the Philosophical Society of Serbia in 1951 Mihailo Marković (then assistant to Nedeljković) criticiced the re-inclusion of formal logic in teaching in the USSR, as well as the textbooks published there viewing this as a deviation from dialectical logic. In our midst logic was included in teaching in secondary schools without specifying whether it was formal or dialectical so that in Marković's textbook, which appeared in 1956, the presentation of traditional Aristotelian logic was followed by critical "corrections" from thepoint of view of dialectics. Shortly afterwards, in 1957, appeared "Uvod u dijalektičku logiku" (Introduction into Dialectical Logic) by Professor Bogdan Šešić where the relationship between Traditional Aristotelian logic and dialectics was treated according to Hegel's triadic scheme: Traditional logic is thesis, Hegel's abstract dialectics is antithesis and concrete Marxist dialectics is synthesis. Later on, between 1958 and 1963, two volumes of his logic were published, but with no specification (neither in the title, nor in the text) whether formal or dialectical logic was the subject. In addition, in the sixties all attempts aimed at constituting a dialectical logic vanish, even in the USSR. The main target of the critics of formal logic were the four, so-called fundamental, laws of formal logic: law of identity, law of non-contradiction, law of excluded third and law of sufficient reason. It was thought that these laws projected a static picture of the world, i.e., that their use in thinking allowed no changes, as well as no

development of mere thinking or its subjects. The assumption of such understanding of formally logical laws is the interpretation of these laws as reflections of the laws of objective world. For instance, B. Šešić claims that "The basis of logical laws is formed by the most fundamental and most general clauses of the entire material objective reality". 1/ B. Šešić "Uvod u dijalekticku logiku" p. 33.

Such a point of view has been often present also in the case of authors of formal logics, to be strengthened through Hegel's identifying the laws of human thinking with those of absolute spirit. Many Marxists have tried to establish in some way the relationship between the formal-logic law of non-contradiction and the law and principle of dialectics concerning the unity of opposites and contradictions, a crucial law of dialectics, and self-motion law (among others Marković and Polish Marxist Adam Schaff) trying to distinguish subjective contradictions of thinking itself, which should be removed, from the objective contradictions concerning the subject of thinking, which must not be removed if one strives towards truth (an example is the contradiction between wave and corpuscular nature of microparticles). In my opinion none of these efforts has given a positive result 2/See my articles from 1965 and 1979 published in book "S moje tacke gledista" (From My Point of View) in 1996. As for modern logic, it had not been mentioned in our midst by 1957 when M. Marković, having come back from his official stay in England, for the first time in his lectures in logic presented the basic notions of logic of predicaments.

Shortly afterwards when I became a university assistant in 1958, M. Marković left to myself to make students familiar with basic notions and procedures of logic of predicaments in the framework of exercises: as far as I remember, the topic was to determine the truth value for some formulae and to reduce them, if possible, to a normal form.

However, this very constrained "novelty" resulted in numerous dilemmas and, even, resistance both among the students and teachers. For instance Prof. Šešić said that this was a complicated and also a completely unnecessary and inapplicable construction. In 1958 M. Marković published "Formalizam u savremenoj logici" (Formalism in Modern Logic, his PhD thesis in Belgrade). Although he thought that contemporary logic must be known, his position towards its striving to achieve a general recognition was rather critical and in his opinion it was only a special logic of mathematics 3/ M. Marković "Filozofski osnovi nauke" pp. 343/365 Shortly afterwards Vladeta Vucković comes (as a lecturer?) to the Faculty of Mechanical Engineering in Belgrade. He wanted to have connections with logicians from the Faculty of Philosophy, with A. Kron and myself. We (Kron and myself, also some post-graduate students of mathematics) regularly attended his completely volunteer course on recursive functions. The process of teaching logic at he Faculty of Philosophy became enriched through many notions and methods characterizing contemporary mathematical logic. After obtaining PhD and teacher's position A. Kron started with teaching this subject. During spring of 1963 a symposium bringing together philosophers and the colleagues from the Faculty of Sciences was held; I would call it symposium of making acquaintance at which the colleagues from the Faculty of Sciences realized for the first time that not all philosophers were followers of dialectical materialism (like Profs A. Stojković or Tihomir Petrović), whereas philosophers realized that the colleagues from the Faculty of Sciences needed a contemporary treatment of notions and theories of mathematics and natural sciences. This symposium was also remembered because of a response of Slaviša Prešić (then a lecturer); namely, when a gentleman whose family name is Lilić said that mathematics had left the sound way of development by introducing the notion of zero which has no pendant in the process of knowing the real world through our senses, S. Prešić retorted "Human brain should also be a sense of knowing". The acquaintances made on this occasion and affinities

manifested through the common opposing to the dogmatism (both in philosophy and science) formed a firm basis from which a seminar for post-graduate students of mathematics and philosophy evolved where the contemporary mathematical logic was subject for the first time. Gradually, mathematical logic became part not only of post-graduate, but under-graduate four-year teaching as well at the Faculty of Sciences (Group of Mathematics). Of course, the matter also here was not spared of a resistance and attempts of removing that "novelty". So in 1975, when the famous law enabling the suspension of eight teachers and assistants at the Faculty of Philosophy went into effect, an initiative from the Faculty of Science reached the Secretary of Education (secretary was the word used for ministers at that time). There one required that the same law should be applied to Prof. Slaviša Prešić "because he teaches a bourgeois logic opposed to Marxism". Fortunately, the Secretary was reasonable enough to investigate the matter and learn the cause: he talked to S. Prešić about this initiative (but, of course, he revealed none of the authors) and the whole matter came in this way to its end. On the other hand mathematical logic has continued its development and enrichment and the question if it is in accordance with Marxist dialectics has been no longer posed.