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A Way to Hypothesize the Opposite, Denial, a Necessary and Sufficient

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Abstract: In this article, the method of hypothesizing the inverse of operations typical of mathematics, Negation, and necessary and sufficient examples are described in detail.

Key words: mathematical property, subtraction, division, negation, theorem, logic, etc.

The desire to express the process of logic with various mathematical symbols is evident in the works of Aristotle. By the 16th and 17th centuries, with the development of mechanics and mathematics, the possibility of applying the mathematical method to logic expanded. The German philosopher Leibniz, striving to create a logical mathematical method that allows solving various problems, laid the foundation for the mathematization of logic. Representation of the logical process using mathematical methods began to develop mainly in the 19th century. Reflection and its value. One of the basic concepts of mathematical logic is the concept of reasoning. By "judgement" we mean a statement about the truth or falsity of which one can think. Any statement is either true or false. No opinion can be both true and false at the same time. For example, " ", " ", "5 is a prime number", "1 is a prime number", "the age of the son is older than the age of the father", the first statement is true, the second is false, the third is true, the 4th and 5 are false opinions. Interrogative and exclamatory sentences cannot be considered. Definitions cannot be judgments either. For example, the definition "A number divisible by 2 is called an even number" cannot be a reasoning. But the statement "if the whole number is divisible by 2, then this number is an even number" is a reasoning. This opinion is true.

By the value of an opinion, we understand whether it is true or false. Opinions are usually denoted by the capital letters of the Latin alphabet (A, B, C, ... X, Y, Z), and their values ("true", "false") by the letters R and Yo. Here R is true, Yo is false. They are also marked with numbers, and a true statement is marked with 1, and a false statement is marked with 0. Considerations that cannot be divided into parts are called elementary considerations. With the help of elementary considerations, more complex considerations can be made. If we put logical operations between the arguments, a new argument is formed, and such an argument is called a joint argument. In the algebra of judgments, the concepts of true or false are among the main concepts. It is somewhat convenient to see on the basis of the table whether the collective reasoning is true or false based on the definition. Such a table is also called a truth table.

Concept of minimal contact circuit. It is known that one function itself can be realized through various contact schemes, because the function's DNSh (KNSh) location is not unique. When implementing a function through a contact circuit, we naturally try to make the number of contacts in the circuit as small as possible, or at least slightly more than this minimum number. The circuit with the smallest possible number of contacts among all the circuits is called the minimal circuit. Solving the problem of realizing logic algebra functions through minimal circuits is an actual problem of great scientific and practical importance. Unfortunately, the exact circuit it is possible to prove that it is a minimal scheme only in some cases. The problem of minimizing schemes is closely related to the problem of minimizing functions of logic algebra. In some cases, it is possible to find properties that show that a given scheme is a minimal scheme. Let's see this in examples. If any variable of the function is not false (important) argument, then the implementation of this function The circuit that does this must have at least one contact corresponding to that variable. The transmission function realized by "K bridge" is / (x,y,z,u,t) = x y v tit V xzu V Izu. All arguments x,y,z,t,u of this function are important arguments (for example, when t = z = u — 0, u — 1, the value of the function depends on x, when x = i = 1, the value of the function is g and so on). Contacts matching these arguments have participated in the scheme once. So, the "bridge" scheme is a minimal scheme.

In mathematical logic, along with the concept of formula, the concept of logical expression is also used. A logical expression is such a complex reasoning that it contains a finite combination of the logical operations of negation, disjunction, conjunction, implication, equivalence, as well as other operations in the algebra of judgments from the given elementary judgments and, if necessary, the order of execution of logical operations on the judgments. may include parentheses. The concept of a logical expression can also be given a strict definition similar to the definition given to the concept of a formula based on the method of mathematical induction. The concept of equal strength of logical expressions can be defined similarly to the concept of equal strength of formulas. Just as in ordinary algebra, expressions with exactly equal value can be replaced with each other, in the algebra of reasoning, partial logical expressions (formulas, reasoning) in a logical expression can be replaced with expressions (formulas, reasoning) of equal strength, i.e. o can be used instead of This makes it possible to simplify complex expressions (formulas, judgments). We saw above that there is a similarity between equivalence with equation and equivalence with reality. Now we show that there is a difference between equality and equivalence. It is known that equality cannot be expressed by means of arithmetic operations (addition, subtraction, multiplication, division) using any substitution in ordinary algebra. In the algebra of considerations, equivalence can be expressed by means of other logical operations.

True formulas are of great importance in logic, they express the laws of logic. Therefore, the problem of determining whether a given arbitrary logical formula is exactly true or not exactly true using a finite number of operations, which is called the solution problem in logic algebra, is an urgent problem. The solution problem can be posed not only for the algebra of reasoning, but also for other logical systems. The solution problem is positively solved for the algebra of reasoning (see paragraph 5 of this chapter). Naturally, the solution problem can be solved using different methods. We call such methods solving methods. The expression solver method can be replaced by the expressions solution procedure or solution algorithm. As a solution procedure, it is possible to obtain a method based on the use of the truth table, because the truth table allows to completely solve the solution problem for each specific formula. If the truth corresponding to the given formula is only ch in the last column of the table, then this formula is exactly true, and if the last column contains at least one y, then the formula is not exactly true. Naturally, in practice, this method cannot always be used, because it has the following main drawback. If n elementary variable considerations are involved in a given formula, then the truth table of this formula will have n 2 lines, and for sufficiently large values of n, this solution procedure cannot be completed, even with the help of a computer. But, in principle, the assertion that "it is possible to solve the problem of solving a finite number of operations with the help of a method based on the use of a truth table" is correct. In the next paragraphs of this chapter, we present another solving procedure. This solving procedure is based on the normal form method of the given formula. Normal forms are also used in other problems of mathematical logic.

References:

1. Codd E. F. A relational model of data for large shared data banks. CommunicatIOns of the ACM, 1970. Vol. 13, No.6, June 1970, pp. 377-387.
2. Euler L. (Leonb Eulero) Solvtio problematis ad geometliam sitvs pertinentis Comment Academiae SCI 1. Petropohtanue, 8, 1736, p. 128-140
3. Lucas E. Recreations Mathematiqques. Paris: Gauthelr-Villas, 189\.

4. Soleev A. Ordering in ComplIcated Problems In 14-th Bntlsh Combmatoncal Conference. Keele, GB, July, 1993 Abstracts. p. 96-98.
5. To'rayev H.T., Azizov I., Otaqulov S. Kombinatorika va graflar nazariyasi: UslublY qo'llanma. - Samarqand: SamDU nashn. 2006. - 263 bet.
6. AJlCKCeCB B.Ii .• KYLlPHBl.\CB B.Ii., CanoiKeHKo A.A., .HOJlOHCKHH C.B. H LIp. MeTo;-{H"lecKall pa3pa60TKa no KypCY "MaTe\1anlqeCKali .10rllKa II ..:IMCKpeTHall Ma1'e"laTMKa". 1980.