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#### TOOLS FOR TEACHING LOGIC FOR CHILDREN

Motto:

"The unassisted hand and the understanding left to itself possess but little power. Effects are produced by the means of instruments and helps, which the understanding requires no less than the hand;"

(F. Bacon, *Novum Organum. Aphorisms. First book, No. 2.*)

In every historical period the most fundamental element of education is the communication of the knowledge of facts. Till now and perhaps also in the future the facts can not be handing over independently from the ruling ideas of the given society and from the persons who are the bearers of them. That is one reason why it is so important to teach logical thinking for children.

The principal objective is to make the children aware of what takes place in their thinking when they arrive at the knowledge by correct reasoning, and what happens when they commit errors in their thinking. Children should be made familiar with those parts of the laws of logical systems that are present in everyday correct thinking. Consequently we have to extract the content from the forms of systems of logic and translate it into the language of everyday discussion.

Plato said ... " a free soul ought not to pursue any study slavishly, for while bodily labors performed under constraint do not harm the body, nothing that is learned under compulsion stays with the mind. ... Do not, then, my friend, keep children to their studies by compulsion but by play. That will also better enable you to discern the natural capacities of each." (*Republic*, VII. 536e - 537a)

Plato's suggestion is realisable, among others, in playing logical games. In the history of teaching logic this presentation was used by Lewis Carroll in his book *The Game of Logic*. We have to develop further his idea. For this purpose I suggest the use of games which are used by children in their everyday life, i. e. that are not constructed specially for the teaching of logic.

I find for example the game "Mastermind" eminently suitable for freeing the logic of proposition from the scientific formulation and putting it in the form of everyday language. The game of "Twenty questions" is a useful aid to encourage recognition of certain rules of the logic of classes. A suitable means serving the same objective, or for the understanding of the rules of definition, is the recognition of the relationship between the questions in crossword puzzles and the corresponding answers. The widely known riddles promote the understanding of problems of logical semantics and the ability to recognise mistakes in logic. These games are used in my book *"It's Logical!"* (Rodopi 1999 pp. 1-142), written in a form of Socratic dialog for children.

I will try to become acquainted with it in my presentation.

