Title: On the Importance of Duality and Multi-ality in Mathematics Education

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Abstract

For many mathematical objects, there are different representations: e.g., a spatial object can be represented either geometrically, or by a function describing its shape. Each representation is useful in some problems for which other representations are less helpful. So, the more representations a student knows, the better he/she can solve problems. In this talk, we propose a general formal description of the corresponding notion of duality (and, more generally, "multi-ality").