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Abstract: This paper investigates the notion of semiotic scaffolding in relation to mathematics by considering its influence on mathematical activities, and on the evolution of mathematics as a research field. We will do this by analyzing the role different representational forms play in mathematical cognition, and more broadly on mathematical activities. In the main part of the paper, we will present and analyze three different cases. For the first case, we investigate the semiotic scaffolding involved in pencil and paper multiplication. For the second case, we investigate how the development of new representational forms influenced the development of the theory of exponentiation. For the third case, we analyze the connection between the development of commutative diagrams and the development of both algebraic topology and category theory. Our main conclusions are that semiotic scaffolding indeed plays a role in both mathematical cognition and in the development of mathematics itself, but mathematical cognition cannot itself be reduced to the use of semiotic scaffolding.
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