

Seminar SAW - Exploring 19th and 20th centuries historiographies of mathematics in the ancient world, 2015-2016

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Historiography of calculation and computation in the ancient world

Baptiste Mélès (Archives Henri Poincaré, France)

Conceptions of Computation in Historiography of Mesopotamian Mathematics

Abstract - During the last century, in which appeared both computability theory and complexity theory, conceptions of computation varied a lot; such variations may have changed, in turn, the way historians of mathematics perceive their very objects. The clearest way to test this hypothesis is to examine variations in the study of one and the same object. I will thus try to show how Mesopotamian mathematics in general, and more particularly a set of clay tables, were described by some major authors from the 1930s to the 2000s: Thureau-Dangin, Neugebauer, Sachs, Knuth and Høyrup. What are the conceptions of computation which underlie their seemingly neutral and objective descriptions?

Although very close in history, those authors were actually contemporaries of deep mutations occurring both in mathematical logic (with computability theory as the study of computation models) and in computer science (with complexity theory as the study of algorithms). Knuth was even one of the major actors of those mutations. In a very short amount of time, computation ceased to be a mere static relation linking a mathematical formula with a timeless result and began to be seen as a dynamic process requiring both time and resources. Hence, computations began to be described as programs rather than mere arithmetical formulae.

This example will show how quickly a shift in the science and technology of a given society was followed by a shift in its very historiography of mathematics.