Expanding Spreadsheet Calculations

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Abstract

Inserting a cell between existing ones belongs among elementary spreadsheet operations. The newly inserted cell is empty, but one can specify its content by introducing a constant or a formula into it. The formula usually expresses the cell value as a function of values of its neighbors. When all of their values are known, the formula is calculated and its result is displayed. The resulting value can instantly be used in following calculations.

It means that the values evaluated in previous steps may serve as a basis for new ones. Depending on the aim, single cells or entire rows or entire columns (and combinations of those) and their contents are inserted. A properly organized insertion expands the area in which the calculation is performed and automates it. If this is accepted as a principle rule, the calculation can start with a very few initial values. It spreads automatically, giving a new esprit to the notion of “spreadsheet”.

The same method can be used in various calculations. In this paper we use it for drawing graphs of one-dimensional and two-dimensional functions as well as fractals with higher and higher precision.

If spreadsheets had an infinite size, the calculation could spread indefinitely. In reality, there are limits that are also demonstrated in our contribution.