Spreadsheet

This exercise aims creating a basic spreadsheet. The goal **is not** to develop the GUI, but the code that implements the data structures, performs the operations and returns the results back to the GUI. The spreadsheet contains cells, organized in rows and columns (similar to MS Excel).

The cells store numbers, strings (enclosed by simple quotes '', e.g.: *'This is a string'*), or formulas (starting with the = sign). In this version, numbers shall be restricted to (positive or negative) integers.

The operations are: addition (*+*), subtraction (-), multiplication (*), integer division (*/*), module (*%*) and concatenation (*&*).

Formulas shall follow Excel conventions (e.g.: *"=1+2"*, *"=B3*(4+1)"*). To avoid tedious parsing, precedence of */% shall be explicitly specified using parentheses. Otherwise, evaluation proceeds strictly from left to right. For instance, *"=1+2*3"* is evaluated to 9 no matter the correct value is 7. Arbitrary spaces can be inserted between symbols (e.g.: *" = 1 + 2* 3 "* is valid)

Errors shall be caught during evaluation and an *#Error* or *#Circular* error message shall be returned. *#Error* is the general error message and shall be returned when operations yield wrong results (e.g.: division by zero, references to incorrect cells, empty cells, etc.). *#Circular* shall be returned when formulas make circular references (causing the recursion never end).