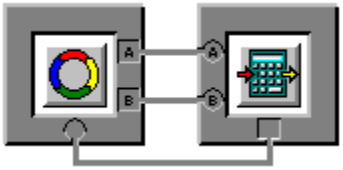
Optimisation Example

FILE: Optimum.cln

Introduction

Among the tools used within the Solution Search object is an unconstrained optimiser. This is a method used to find optimal solutions to problems that have no limiting factors on them.

Layer 0 of this file shows a simple example of such a problem.



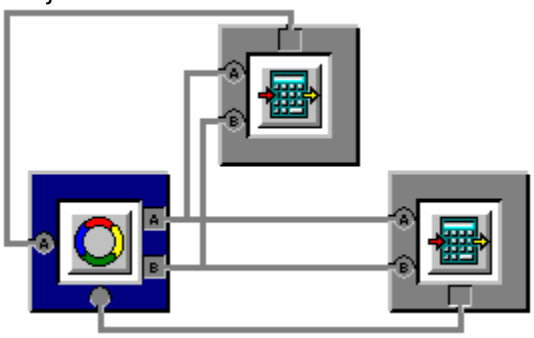
- This example **minimises** the function of two parameters: **(b-a*a)^2+(a*(1-b)+1)^2**
- This equation is held in the Calculator object. The outputs from Solution Search are fed directly into the Calculator object and the result fed directly back into Solution Search.
- To solve the sheet, switch to Use Mode and click on the Solution Search Object.

The result is a minimum of 0.27423609 when A is -0.65492435 and B is 0.14201398

Constrained Optimisation

Another tool within the Solution Search is the constrained optimiser - this is a technique for solving problems that are bounded by limits, but are not linear and hence linear programming techniques will not work (see Linear.cln).

On layer 1 of this file is an example of a constrained optimisation using the Solution Search object.



This is the Solution Search object, which is used to find the minimum result possible from the equation.

This is a Calculator object, used to calculate the test function.

This is a Solution Search object used to solve the sheet.

This is a Calculator object, used to calculate the constraint under which the sheet is evaluated.

This is a Calculator object, used to calculate the function being minimised.