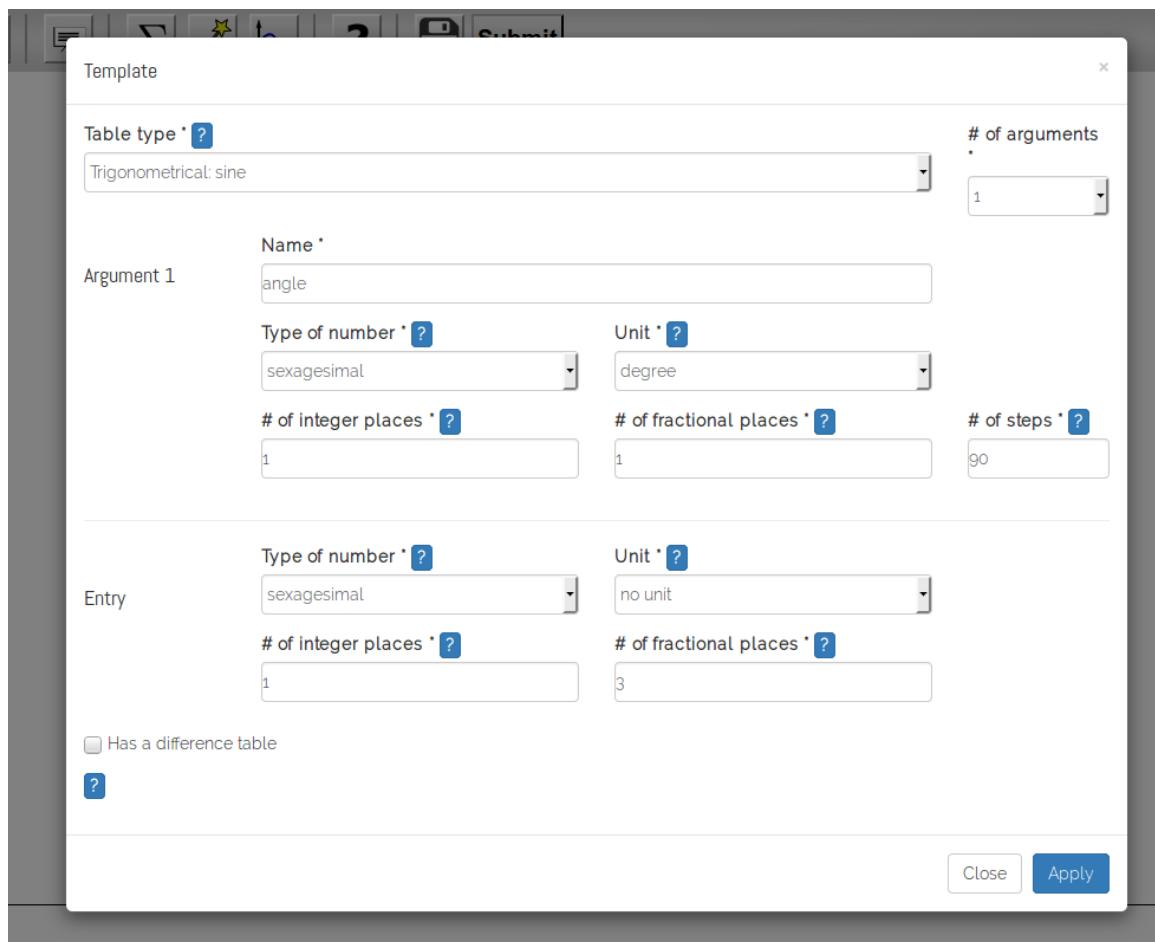


Example : Input of a Sine table

Fill in the template of the table :

For example :



Input the the values of the argument :

In our case we enter the first and the last values.

Then we select the whole column of arguments (shortcut W or S)

The screenshot shows a software interface with a table editor. The left column contains the value '01' under the header 'angle'. The right column contains the value '00'. The entire column of headers and values is selected, indicated by a blue selection bar above the first row. To the right of the table, there is a vertical stack of four empty sheets of graph paper.

and we compute the others with the in-between tool (shortcut : B)

angle	
62	00
63	00
64	00
65	00
66	00
67	00
68	00
69	00
70	00
71	00
72	00
73	00
74	00
75	00
76	00
77	00
78	00
79	00
80	00
81	00
82	00
83	00
84	00
85	00
86	00
87	00
88	00
89	00
90	00

The values suggested by the tool appear in green. This means they need to be validated before being taken into account. This can be done with the validate button (shortcut SPACE).

angle	
62	00
63	00
64	00
65	00
66	00
67	00
68	00
69	00
70	00
71	00
72	00
73	00
74	00
75	00
76	00
77	00
78	00
79	00
80	00
81	00
82	00
83	00
84	00
85	00
86	00
87	00
88	00
89	00
90	00

Input the values of the entry :

With interpolation tools :

The most general way of filling the entry values is thanks to the interpolation tools.

In our example we enter the first 3 values and we wish to perform a parabolic interpolation to predict the fourth. To do so, we select the 3 values we just entered (and which will be used to evaluate the parameters of the parabole) and use the forward interpolation tool (shortcut S).

angle	01 00	02 05	08 24	34
01	00	01	02	49
02	00	02	05	38
03	00	03	08	24
04	00			
05	00			
06	00			
07	00			
08	00			
09	00			
10	00			
11	00			
12	00			
13	00			
14	00			
15	00			
16	00			
17	00			
18	00			

The values used to compute the parameters of the interpolation are colored in orange, while the target cells are colored in green.

Once the value is predicted, we correct it according to the table we are copying.

angle	01 00	02 05	08 24	34
01	00	01	02	49
02	00	02	05	38
03	00	03	08	24
04	00	11	08	34
05	00			
06	00			
07	00			
08	00			
09	00			
10	00			
11	00			
12	00			
13	00			
14	00			
15	00			
16	00			
17	00			
18	00			
19	00			
20	00			
21	00			
22	00			
23	00			
24	00			
25	00			
26	00			
27	00			
28	00			
29	00			

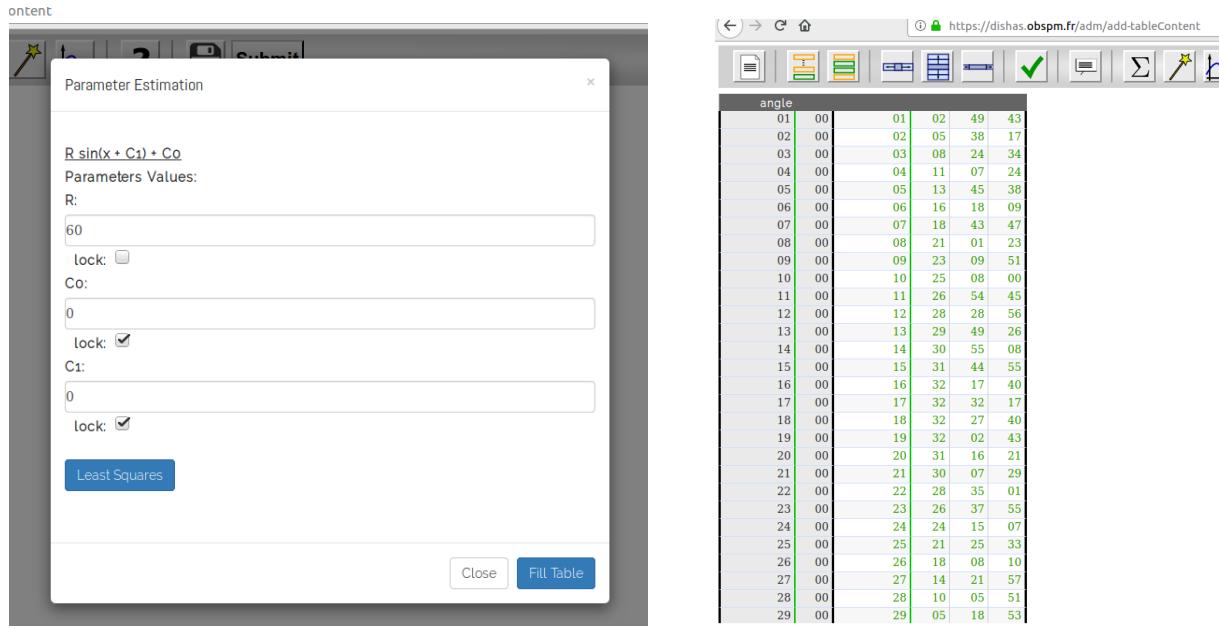
Tip : You can add +/-1 to the number in a selected cell by pressing Q (-1) or E (+1).

By using a model :

If you know the parameters of the model your table is based on, you can use it to fill all the entry values. Just click on the ‘Fill with model’ button  and enter the value of the parameters.

In our example :

We know our Sine table uses a radius R of 60, so we enter this value and then we click on ‘Fill Table’.



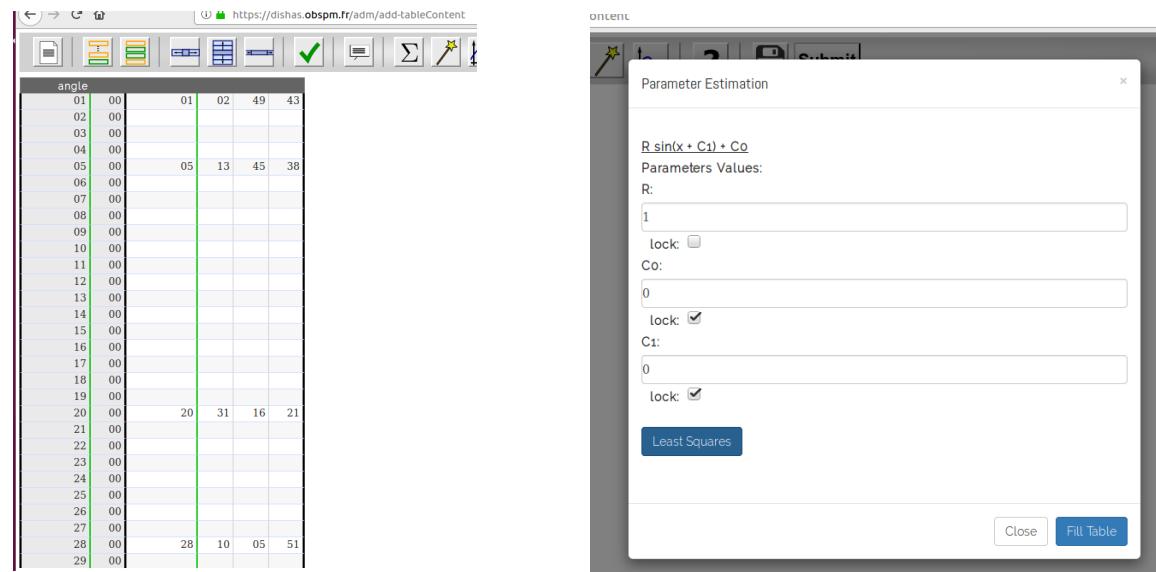
The screenshot shows two windows. On the left is a 'Parameter Estimation' dialog with the formula $R \sin(x + C_1) + C_0$. It has fields for 'R' (60), 'C₀' (0), and 'C₁' (0). There are checkboxes for 'lock:' next to each field. A 'Least Squares' button is at the bottom. On the right is a table titled 'angle' with 30 rows of data. The first few rows are: 01 00 | 01 02 49 43; 02 00 | 02 05 38 17; 03 00 | 03 08 24 34; 04 00 | 04 11 07 24; 05 00 | 05 13 45 38; 06 00 | 06 16 18 09; 07 00 | 07 18 43 47; 08 00 | 08 21 01 23; 09 00 | 09 23 09 51; 10 00 | 10 25 08 00; 11 00 | 11 26 54 45; 12 00 | 12 28 28 56; 13 00 | 13 29 49 26; 14 00 | 14 30 55 08; 15 00 | 15 31 44 55; 16 00 | 16 32 17 40; 17 00 | 17 32 32 17; 18 00 | 18 32 27 40; 19 00 | 19 32 02 43; 20 00 | 20 31 16 21; 21 00 | 21 30 07 29; 22 00 | 22 28 35 01; 23 00 | 23 26 37 55; 24 00 | 24 24 15 07; 25 00 | 25 21 25 33; 26 00 | 26 18 08 10; 27 00 | 27 14 21 57; 28 00 | 28 10 05 51; 29 00 | 29 05 18 53.

Then we can proceed to check and correct every suggested value according to the historical document.

By evaluating the parameters of the model

If you don't know the value of the parameter in your table, you can enter some values of the entry (preferably the more significant ones for parameter estimation) and estimate the value of the parameters thanks to the least squares method.

In our example, we fill in some entry values, and chose 1.0 as a starting value for R (LSQ is an iterative method so choosing a correct starting point is important).



The screenshot shows two windows. On the left is a table titled 'angle' with 30 rows. The first few rows are: 01 00 | 01 02 49 43; 02 00 | 02 05 38 17; 03 00 | 03 08 24 34; 04 00 | 04 11 07 24; 05 00 | 05 13 45 38; 06 00 | 06 16 18 09; 07 00 | 07 18 43 47; 08 00 | 08 21 01 23; 09 00 | 09 23 09 51; 10 00 | 10 25 08 00; 11 00 | 11 26 54 45; 12 00 | 12 28 28 56; 13 00 | 13 29 49 26; 14 00 | 14 30 55 08; 15 00 | 15 31 44 55; 16 00 | 16 32 17 40; 17 00 | 17 32 32 17; 18 00 | 18 32 27 40; 19 00 | 19 32 02 43; 20 00 | 20 31 16 21; 21 00 | 21 30 07 29; 22 00 | 22 28 35 01; 23 00 | 23 26 37 55; 24 00 | 24 24 15 07; 25 00 | 25 21 25 33; 26 00 | 26 18 08 10; 27 00 | 27 14 21 57; 28 00 | 28 10 05 51; 29 00 | 29 05 18 53. The first few rows have their values filled in. On the right is a 'Parameter Estimation' dialog with the formula $R \sin(x + C_1) + C_0$. It has fields for 'R' (1), 'C₀' (0), and 'C₁' (0). There are checkboxes for 'lock:' next to each field. A 'Least Squares' button is at the bottom. Below the dialog is a 'Close' button and a 'Fill Table' button.

After clicking on the ‘Least Squares’ button, several iterations are performed and the new value of the parameters are displayed. We can correct this value (here we would probably round the result to 60.0), perform more iterations, or fill the table.

Parameter Estimation

R sin(x + C₁) + C₀

Parameters Values:

R:
60.0000004527005
lock:

C₀:
0
lock:

C₁:
0
lock:

Least Squares

Close **Fill Table**

angle

01	00	01	02	49	43
02	00	02	05	38	17
03	00	03	08	24	34
04	00	04	11	07	24
05	00	05	13	45	38
06	00	06	16	18	09
07	00	07	18	43	47
08	00	08	21	01	23
09	00	09	23	09	51
10	00	10	25	08	00
11	00	11	26	54	45
12	00	12	28	28	56
13	00	13	29	49	26
14	00	14	30	55	08
15	00	15	31	44	55
16	00	16	32	17	40
17	00	17	32	32	17
18	00	18	32	27	40
19	00	19	32	02	43
20	00	20	31	16	21
21	00	21	30	07	29
22	00	22	28	35	01
23	00	23	26	37	55
24	00	24	24	15	07
25	00	25	21	25	33
26	00	26	18	08	10
27	00	27	14	21	57
28	00	28	10	05	51
29	00	29	05	18	53

Tip : When there are several parameters in the model, you can lock the value of some of them so they are not optimized by the LSQ method.

NB : This parameter estimation is only an input help tool. It must NOT be used to evaluate the actual value of the parameters used by the historical actor (for example this procedure will not detect interpolated values or outliers).