

Optimization of Numeric Data Processing by the INPGRAPH 3.4

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The input of true experimental numeric values is an important task of compilation for the EXFOR library. We often get data from old articles where the results are shown only as charts and table data are absent. The only way to get numeric data in this case is to digitize graphics.

We have worked out a special program InpGraph to digitize data of scanned images or images obtained from PDF-files. This program is available for using by all data centers.

We keep developing and improving our digitizer. Now we have issued the new release – number 3.4. Here we optimized the digitized numeric data processing. The DataTable mode was implemented in InpGraph. This mode is available from the results window as shown in the figure 1.

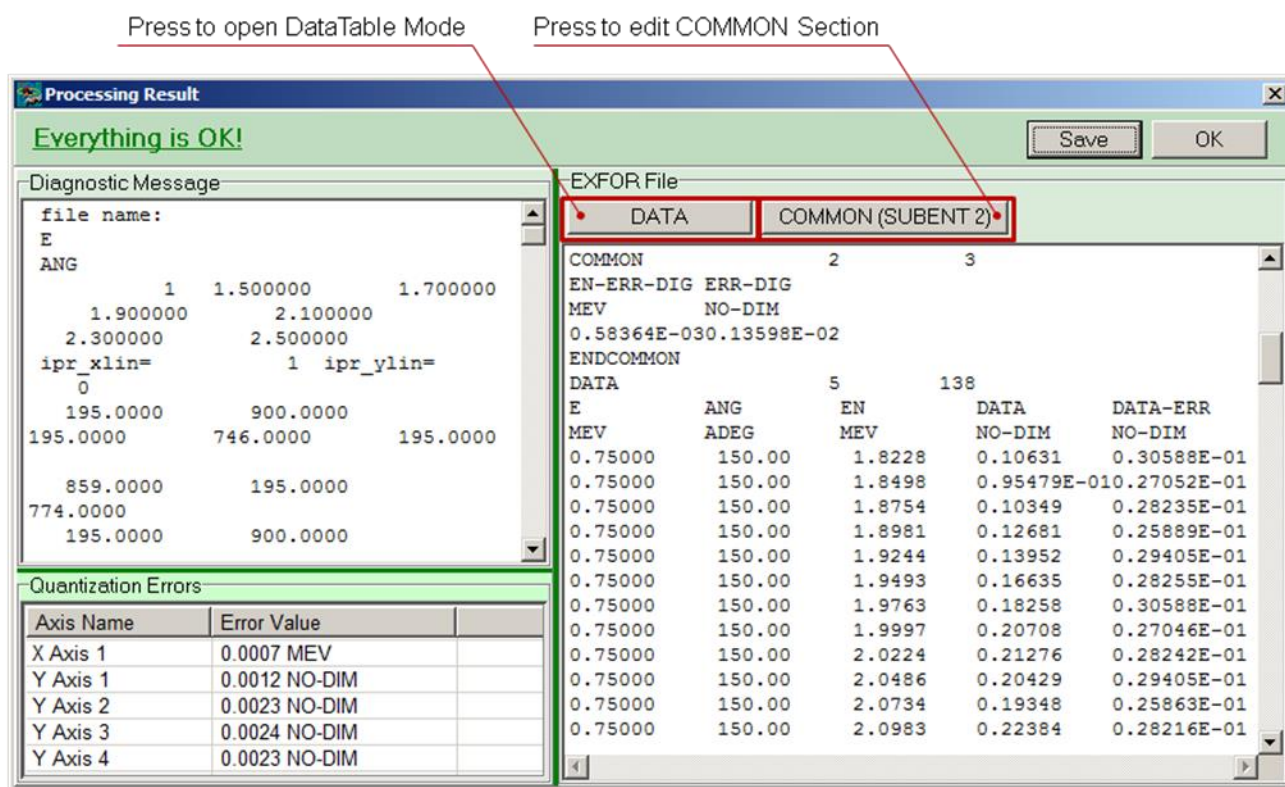


Fig.1

The DataTable mode is the mode of spreadsheet that provides users the following functions:

- Inputting and editing of numerical data;
- Handling of rows and columns;
- Calculations;

- Data sorting by three columns;
- Exporting and importing of numeric data in text format, Microsoft Word or Microsoft Excel formats.

Numeric data export of digitized results not only into the EXFOR-format provides the multipurpose usage of the InpGraph program and extends its range of application.

There are no limitations of rows number in the DataTable mode. It is important for spectra digitizing and their following processing.

The DataTable mode window is shown in the figure 2.

	E	ANG	EN	DATA	DATA-ERR
	MEV	ADEG	MEV	NO-DIM	NO-DIM
1	0.	30.	1.5	0.148	0.060
2	0.	30.	1.53	0.162	0.051
3	0.	30.	1.55	0.166	0.047
4	0.	30.	1.58	0.175	0.051
5	0.	30.	1.6	0.198	0.051
6	0.	30.	1.62	0.211	0.065
7	0.	30.	1.65	0.216	0.051
8	0.	30.	1.68	0.215	0.056
9	0.	30.	1.7	0.219	0.051
10	0.	30.	1.73	0.214	0.060
11	0.	30.	1.75	0.214	0.056
12	0.	30.	1.78	0.218	0.051
13	0.	30.	1.8	0.255	0.051
14	0.	30.	1.83	0.292	0.060
15	0.	30.	1.85	0.310	0.056
16	0.	30.	1.88	0.342	0.056
17	0.	30.	1.9	0.351	0.060
18	0.	30.	1.93	0.373	0.051
19	0.	30.	1.95	0.368	0.051
20	0.	30.	1.98	0.368	0.060
21	0.	30.	2.	0.344	0.060
22	0.	30.	2.03	0.386	0.047
23	0.	30.	2.05	0.427	0.047

Fig.2

The Data Table mode provides digitized numeric data validation that contains the following actions:

- Control of numerical data:
 - ✓ data validation;
 - ✓ precision assignment of numerical data;
- Verification of numerical data:
 - ✓ avoidance of values coincidence by independent variables;
 - ✓ control by graphic presentation of numerical.

While checking numerical values the program detects illegal characters and controls allowed variation range for every data column.

The definition of numeric data precision for every column is provided in the Data Table mode. The following parameters for precision settings may be set:

- number of digits after decimal point for the fixed point format;
- total number of digits of mantissa and the total number of digits of exponent for the scientific format;
- a flag to erase trailing zero.

The Chart mode for additional control of numerical data is available from the DataTable mode. Curves for all independent variables according to the digitized numerical data are presented on a plot.

A special check mode to avoid duplication of numerical data along independent variables is provided in the DataTable window. To use it one should press the button **Set** on the panel **Table** (Fig.2). After selection of table columns for equal independent variables checking the results are shown in the DataTable window (Fig.3).

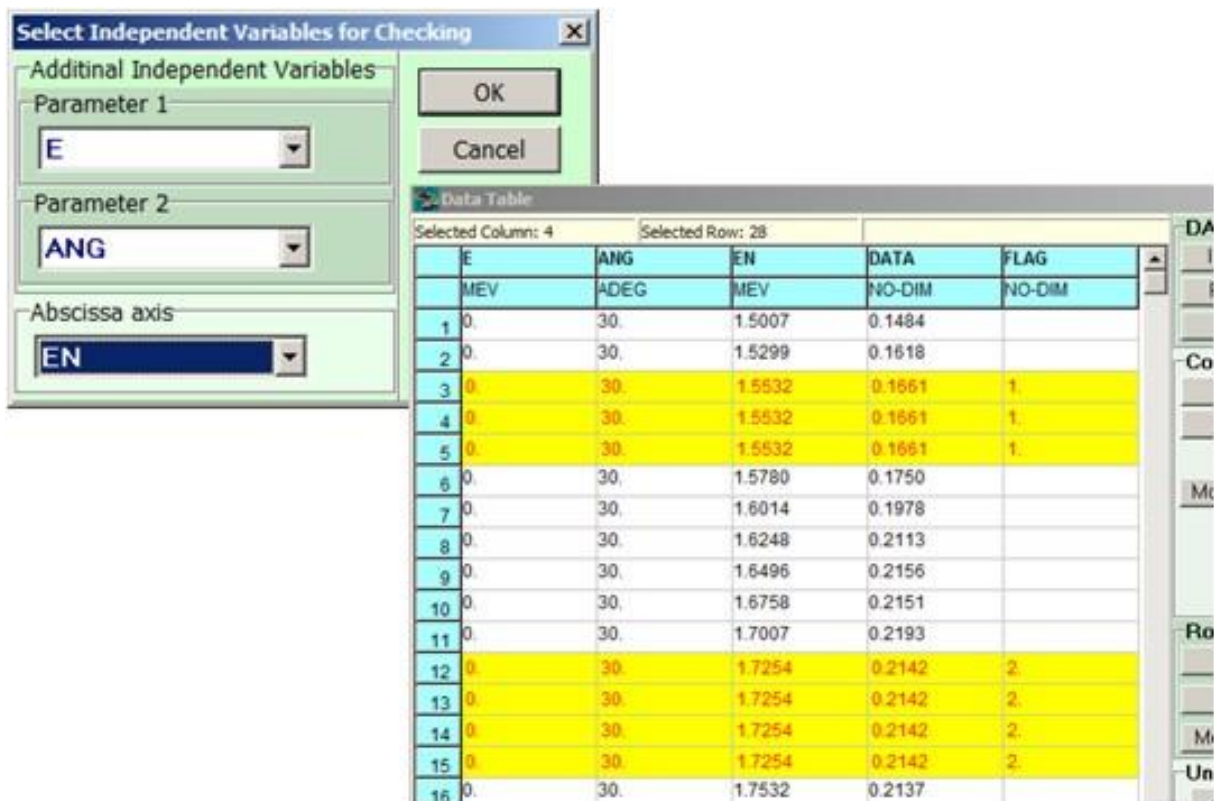


Fig.3

The COMMON section processing (for the second SUBENTRY) was implemented in InpGraph. It is also available from the results window as shown in the figure 1.

The COMMON Section window is shown in the figure 4. Its functional capabilities are similar to the capabilities of columns processing in the DataTable mode.

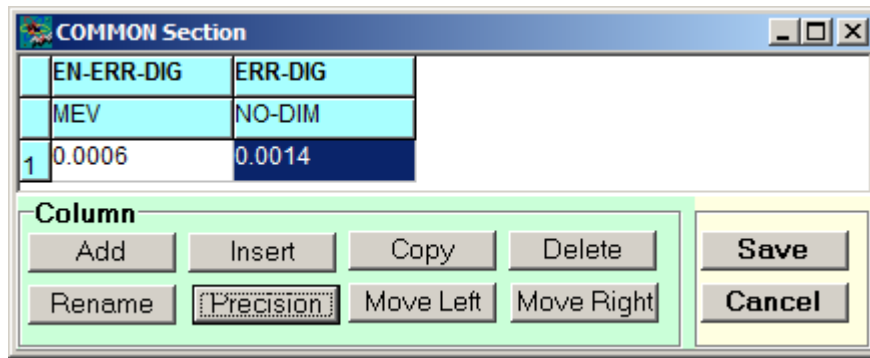


Fig.4

So the numeric data processing according to the EXFOR rules is available now in the InpGraph 3.4. It is possible to generate DATA SECTION and COMMON SECTION completely by the digitizer.