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## STORAGE AND SELECTION OF CELL MARKERS

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## STORAGE AND SELECTION OF CELL MARKERS WITHIN A SPREADSHEET PROGRAM

### Technical task:

The task of the technical innovation is to provide a mark memory for a variety of other tasks.

### Initial situation:

A spreadsheet program (e.g., Microsoft Excel) currently works by applying functions related to one or more labeled cells (e.g., changing cell color) within a table.

Tables are constructed in two dimensions with rows and columns. A cell is uniquely addressed via a defined row and column. A marker may include any or any selection of cells and is clearly related to a table.

The marking is only valid until another marking has been selected. The marker can not be saved for later use or even across tables.

A simple or a complex (expensive) generated mark is in a functional processing after their deactivation (= automatic deselection in favor of a new marker) no longer globally and completely retrievable.

Program functions that process marks, if necessary, can not explicitly refer to these previous markings.

### Solution:

An additional functionality for a spreadsheet program completely stores markers taken in a tag store. These stored markings can be called up for functional further processing in program dialogues. In addition, a saved marker can be recalled from the marker memory to the current marker at a later time.

If a spreadsheet program such as Microsoft Excel requires two different markers, this can be done from the markup store.

The tag memory can still be managed:

1. emptying the marking memory,
2. emptying the marking memory except for the element last created,
3. Combine all the different markers in the mark memory into a complex multiple mark. This would then be the only entry in the Marker memory created.

The following example explains one possible application:

- The user marks the following entries in a table, see Figure 1.

For example, the user now wants all other table entries to be gray be deposited.

To do this, he places the marker created above in the marker memory.

- It then marks the entire data area of the table, see Figure 2.

- Now the function of the subtraction is called. The current marker therefore subtracts the entry from the marker memory, see Figure 3. With this marker, for example, a desired coloring be made.

Here is an example of a simple input dialog in Microsoft Excel:

For example, you must specify the ranges for the row names and row values for the data specification of a chart. The corresponding areas are selected for each.

In Figure 4 on the left, the yellow-filled field is called up for the row names. The dialog shown on the right in Figure 4 appears, where you can „drag“ the desired cell range with the mouse pointer.

In such simple and manageable cell areas, the manual procedure is still feasible. It serves only to illustrate the range query in Excel. The advantage arises with larger markings and complex multiple markings. The input via the dialog via e.g. The mouse would hardly be practicable here.

The storage of markers in the mark memory and their subsequent reuse thus represent an efficiency advantage, since complex markers in dialogs can only be entered „by hand“. Because manual input would be impractical for complex markers, there is also a functional advantage.

The storage of markers in the mark memory and the selection thereof could be used both in original Excel dialogs and in third-party programs.

The set operations with tags described are not available in Excel. Especially with complex multiple markings, this results in a great time savings.

The technical implementation of a mark memory is exemplified by the tool AXCEL, see Figure 5:

Implementation Example 1:

In the opened spreadsheet program, e.g. stored via a program button, the current marker in the marker memory and automatically provided with a consecutive number. Subsequently, this mark can be reused at a later time.

- Call within tool „AXCEL“ with the key combination CTRL + d and storage in marking memory, see figure 6. With the program button on the top right (arrow, highlighted in yellow), the current mark in the mark memory below already existing stored markers (in Figure 6 as # 2).

- Retrieval of the marker in the dialog:

Within an input dialog, which normally requires a marker, a selection from the marker memory can now be made with a mouse click, see Figure 7. Optionally, a common manual marker selection is possible.

A next tag storage implementation example is a function of the AXCEL tools for quantity analysis of data. Here, the cell contents of the marked column are considered as a set. In the further dialog, a second quantity, possibly a previously stored marker, is offered for selection in the marker memory, see Figure 8.

Another implementation example shows an application, the „solution“ explained quantity operations with markings.

Output is the following table with markings available, see Figure 9.

For example, the user now wants all other table entries to be grayed out. The method:

- Calling the tool „AXCEL“ with CTRL + d and storing the generated marking in the marking memory, see Figure 10.

- Then mark the entire data area of the table, see Figure 11.

- Call the function „Subtraction“ in the tool AXCEL, see Figure 12.

- The entry from the tag memory is subtracted from the current tag.

If there are several entries in the marker memory, the selection of a specific entry is requested by the user. Result display: In the AXCEL tool, the new marker is placed in the marker memory, see Figure 13. The current marker after the operation is now visible on the worksheet, see Figure 14.

#### Advantages:

- Recall later stored cell markers.
- Editing stored cell markers.
- Creation of complex cell markers.

#### Possible application:

- Applicable in spreadsheet programs.

#### Technische Neuerung

| A | B             | C           | D            | E          | F        | G        |
|---|---------------|-------------|--------------|------------|----------|----------|
| 1 | Strasse       | Stammnummer | Geburtsdatum | Wohnort    | Vorname  | Nachname |
| 2 |               | 92275       |              | Ingolstadt | Herbert  | Höfner   |
| 3 |               | 97416       |              | Wolnzach   | Heinrich | Reiter   |
| 4 | Am Graben     | 94713       | 02.01.1965   | Eichstätt  |          | Müller   |
| 5 | Mozartstrasse | 94711       | 15.02.1988   | Ingolstadt |          | Helfrich |
| 6 | Frankenweg    | Neu_#1      |              | Nürnberg   | Sabine   | Keller   |
| 7 |               | 97415       | 24.10.1977   |            |          | Pfister  |
| 8 | Am Eck        | 94712       | 26.07.1992   | Ingolstadt |          | Kunz     |

Abbildung 1

| A | B             | C           | D            | E          | F        | G        |
|---|---------------|-------------|--------------|------------|----------|----------|
| 1 | Strasse       | Stammnummer | Geburtsdatum | Wohnort    | Vorname  | Nachname |
| 2 |               | 92275       |              | Ingolstadt | Herbert  | Höfner   |
| 3 |               | 97416       |              | Wolnzach   | Heinrich | Reiter   |
| 4 | Am Graben     | 94713       | 02.01.1965   | Eichstätt  |          | Müller   |
| 5 | Mozartstrasse | 94711       | 15.02.1988   | Ingolstadt |          | Helfrich |
| 6 | Frankenweg    | Neu_#1      |              | Nürnberg   | Sabine   | Keller   |
| 7 |               | 97415       | 24.10.1977   |            |          | Pfister  |
| 8 | Am Eck        | 94712       | 26.07.1992   | Ingolstadt |          | Kunz     |

Abbildung 2

| A | B             | C           | D            | E          | F        | G        |
|---|---------------|-------------|--------------|------------|----------|----------|
| 1 | Strasse       | Stammnummer | Geburtsdatum | Wohnort    | Vorname  | Nachname |
| 2 |               | 92275       |              | Ingolstadt | Herbert  | Höfner   |
| 3 |               | 97416       |              | Wolnzach   | Heinrich | Reiter   |
| 4 | Am Graben     | 94713       | 02.01.1965   | Eichstätt  |          | Müller   |
| 5 | Mozartstrasse | 94711       | 15.02.1988   | Ingolstadt |          | Helfrich |
| 6 | Frankenweg    | Neu_#1      |              | Nürnberg   | Sabine   | Keller   |
| 7 |               | 97415       | 24.10.1977   |            |          | Pfister  |
| 8 | Am Eck        | 94712       | 26.07.1992   | Ingolstadt |          | Kunz     |

Abbildung 3

| A | B | C | D |
|---|---|---|---|
| 1 |   |   |   |
| 2 |   |   |   |
| 3 | A | 3 |   |
| 4 | B | 7 |   |
| 5 | C | 4 |   |

Datenreihe bearbeiten

Reihenname: =Tabelle5!\$B\$3:\$B\$5 = A B C

Reihenwerte: =Tabelle5!\$C\$3:\$C\$5 = 3; 7; 4

OK Abbrechen

Abbildung 4

| A | B | C | D |
|---|---|---|---|
| 1 |   |   |   |
| 2 |   |   |   |
| 3 | A | 3 |   |
| 4 | B | 7 |   |
| 5 | C | 4 |   |

Datenreihe bearbeiten

=Tabelle5!\$B\$3:\$B\$5

Technische Neuerung

|   | A | B        | C        | D        |
|---|---|----------|----------|----------|
| 1 |   |          |          |          |
| 2 |   |          |          |          |
| 3 |   | Spalte X | Spalte Y | Spalte Z |
| 4 |   | 1        | 2        | 3        |
| 5 |   | 4        | 5        | 6        |
| 6 |   | 7        | 8        | 9        |
| 7 |   |          |          |          |

Abbildung 5

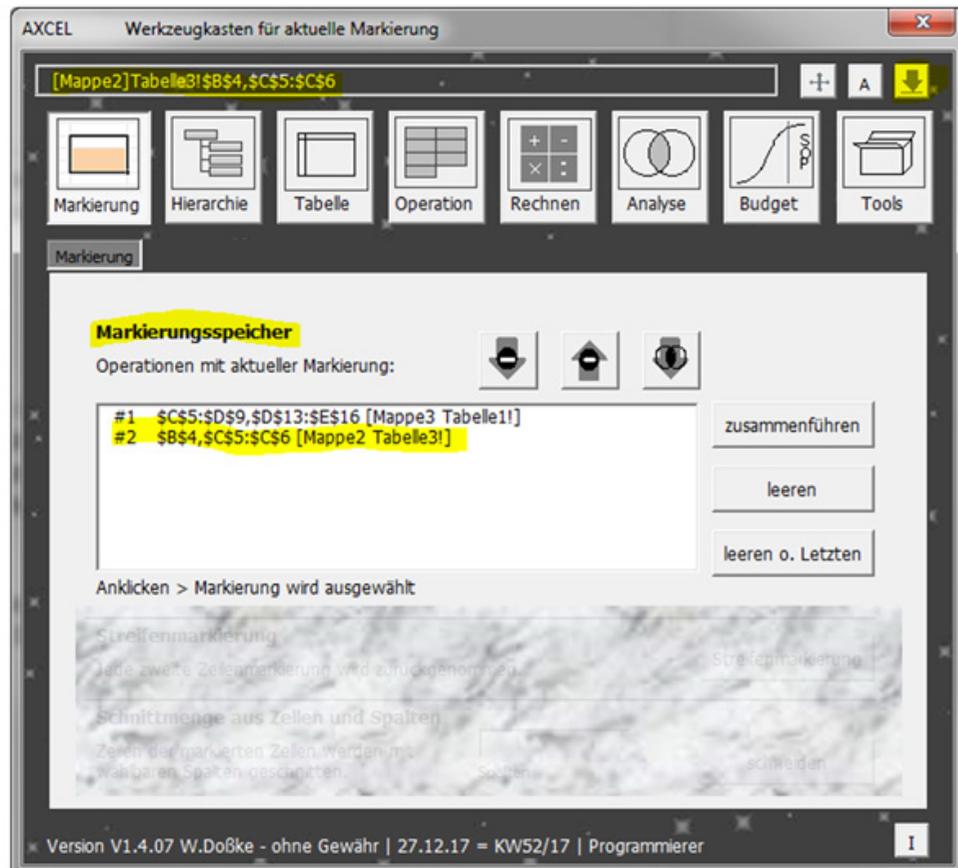


Abbildung 6

Technische Neuerung

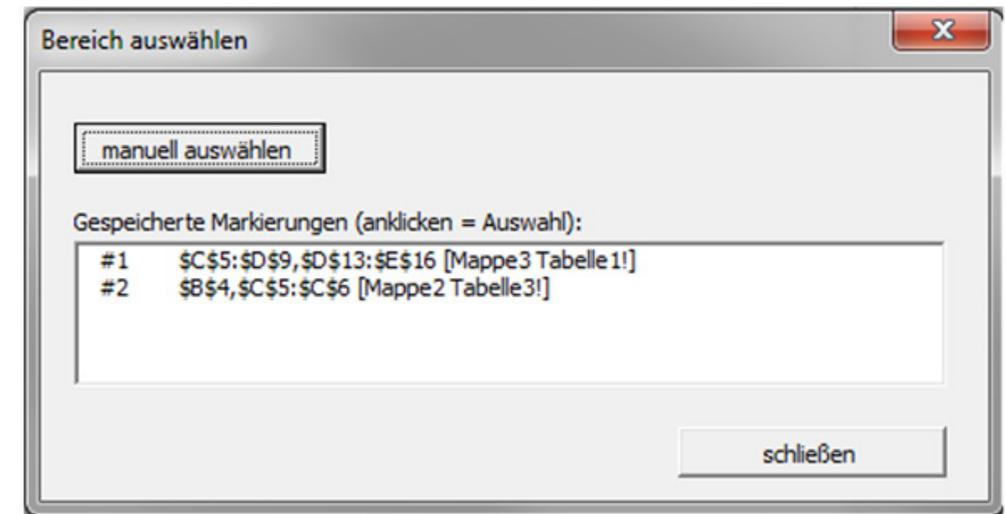


Abbildung 7

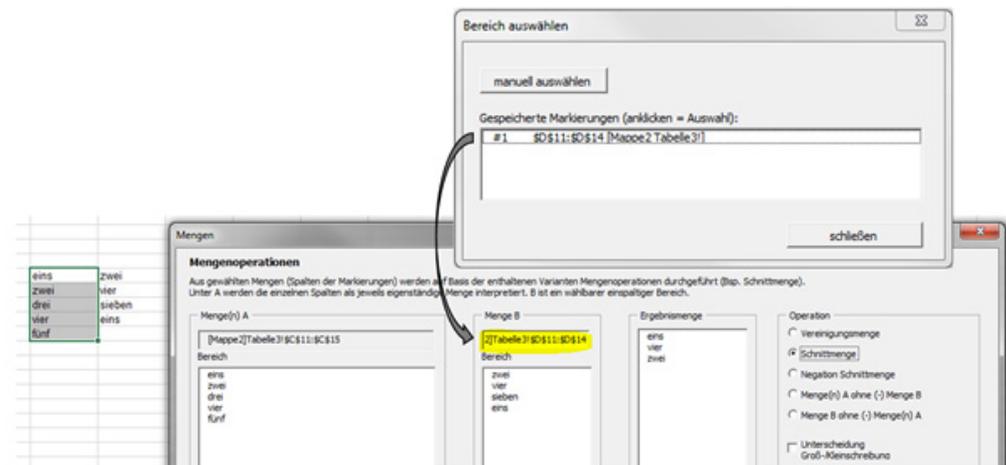


Abbildung 8

|   | A | B             | C          | D            | E          | F        | G        |
|---|---|---------------|------------|--------------|------------|----------|----------|
| 1 |   | Strasse       | Stamnummer | Geburtsdatum | Wohnort    | Vorname  | Nachname |
| 2 |   |               | 92275      |              | Ingolstadt | Herbert  | Höfner   |
| 3 |   |               | 97416      |              | Wolnzach   | Heinrich | Reiter   |
| 4 |   | Am Graben     | 94713      | 02.01.1965   | Eichstätt  |          | Müller   |
| 5 |   | Mozartstrasse | 94711      | 15.02.1988   | Ingolstadt |          | Helfrich |
| 6 |   | Frankenweg    | Neu_#1     |              | Nürnberg   | Sabine   | Keller   |
| 7 |   |               | 97415      | 24.10.1977   |            |          | Pfister  |
| 8 |   | Am Eck        | 94712      | 26.07.1992   | Ingolstadt |          | Kunz     |

Abbildung 9

Technische Neuerung

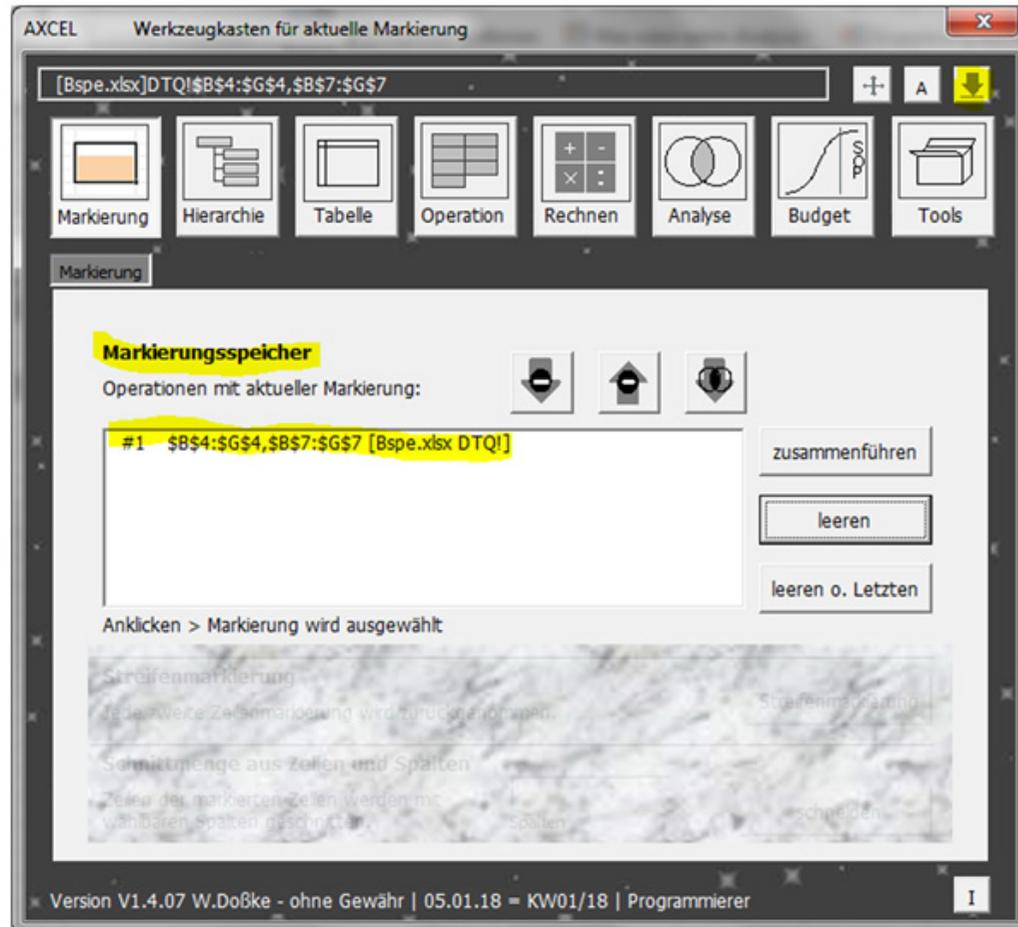


Abbildung 10

| A | B             | C          | D            | E          | F        | G        |
|---|---------------|------------|--------------|------------|----------|----------|
| 1 | Strasse       | Stamnummer | Geburtsdatum | Wohnort    | Vorname  | Nachname |
| 2 |               | 92275      |              | Ingolstadt | Herbert  | Höfner   |
| 3 |               | 97416      |              | Wolnzach   | Heinrich | Reiter   |
| 4 | Am Graben     | 94713      | 02.01.1965   | Eichstätt  |          | Müller   |
| 5 | Mozartstrasse | 94711      | 15.02.1988   | Ingolstadt |          | Helfrich |
| 6 | Frankenweg    | Neu_#1     |              | Nürnberg   | Sabine   | Keller   |
| 7 |               | 97415      | 24.10.1977   |            |          | Pfister  |
| 8 | Am Eck        | 94712      | 26.07.1992   | Ingolstadt |          | Kunz     |

Abbildung 11

Technische Neuerung

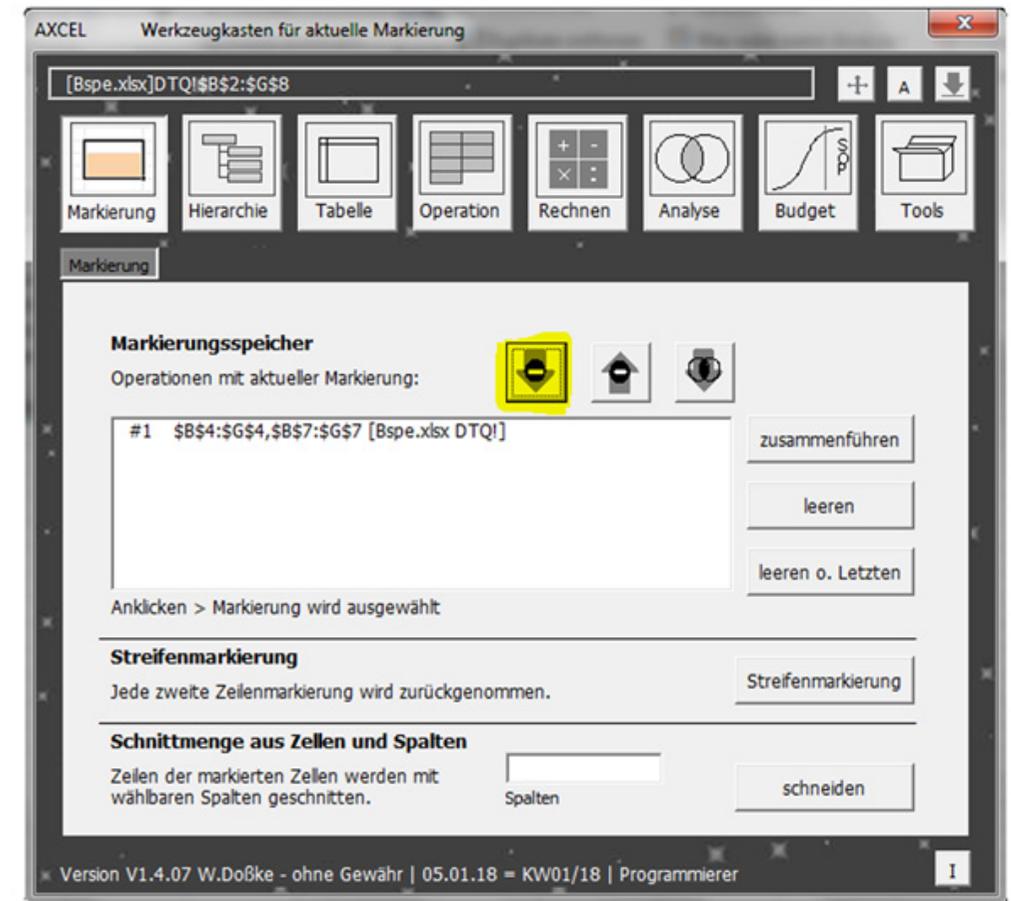


Abbildung 12

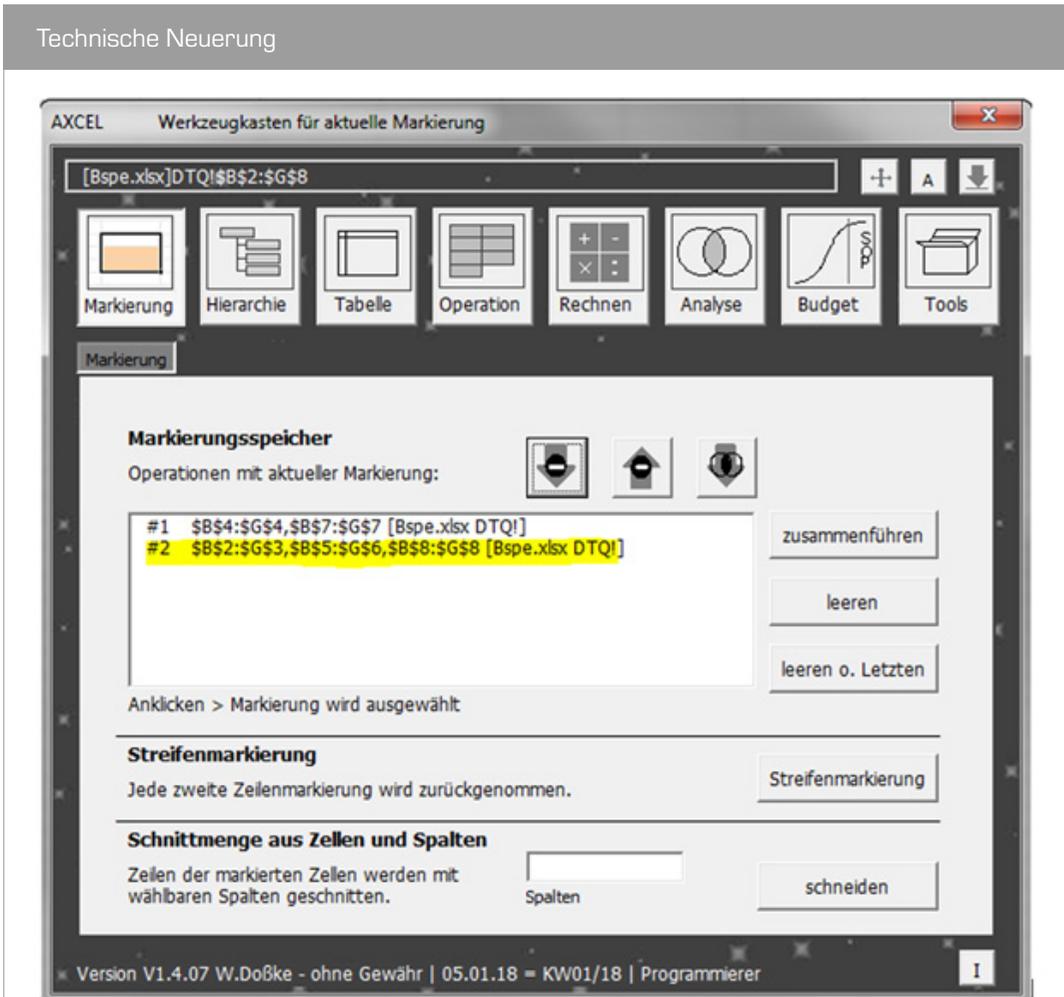


Abbildung 13

| A | B             | C          | D            | E          | F        | G        |
|---|---------------|------------|--------------|------------|----------|----------|
| 1 | Strasse       | Stamnummer | Geburtsdatum | Wohnort    | Vorname  | Nachname |
| 2 |               | 92275      |              | Ingolstadt | Herbert  | Höfner   |
| 3 |               | 97416      |              | Wolnzach   | Heinrich | Reiter   |
| 4 | Am Graben     | 94713      | 02.01.1965   | Eichstätt  |          | Müller   |
| 5 | Mozartstrasse | 94711      | 15.02.1988   | Ingolstadt |          | Helfrich |
| 6 | Frankenweg    | Neu #1     |              | Nürnberg   | Sabine   | Keller   |
| 7 |               | 97415      | 24.10.1977   |            |          | Pfister  |
| 8 | Am Eck        | 94712      | 26.07.1992   | Ingolstadt |          | Kunz     |

Abbildung 14