

# A Graphical User Interface to Manage Cell Suppression on Sets of Linked Tables

The image shows two side-by-side screenshots of a statistical software interface. The left screenshot displays a data table with columns for 'Land', 'Wahljahr', 'Partei', 'Wahl', 'Wahlkreis', 'Wahlkreisnummer', 'Wahlkreisname', 'Wahlkreisnummer', 'Wahlkreisname', and 'Wahlkreisnummer'. The right screenshot displays a similar data table with columns for 'Land', 'Wahljahr', 'Partei', 'Wahl', 'Wahlkreis', 'Wahlkreisnummer', 'Wahlkreisname', 'Wahlkreisnummer', 'Wahlkreisname', and 'Wahlkreisnummer'. Both tables contain numerical data and are presented in a grid format.

## Using SAS and $\tau$ -Argus

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# $\tau$ -ARGUS in Production

## $\tau$ -ARGUS in a production process

- Extract data from production data base
- Turn data into format readable by  $\tau$ -ARGUS (e.g. .csv, .txt, ..)
- Run  $\tau$ -ARGUS
- Turn output into the data base format
- Update database (e.g.: update suppression status of cells)

The production process can be automated using  
 $\tau$ -ARGUS batch facility

Example for the case of a SAS based production  
process

- SAS Package Bifrost (SAS2ARGUS) (Almberg et al., Kraftling)

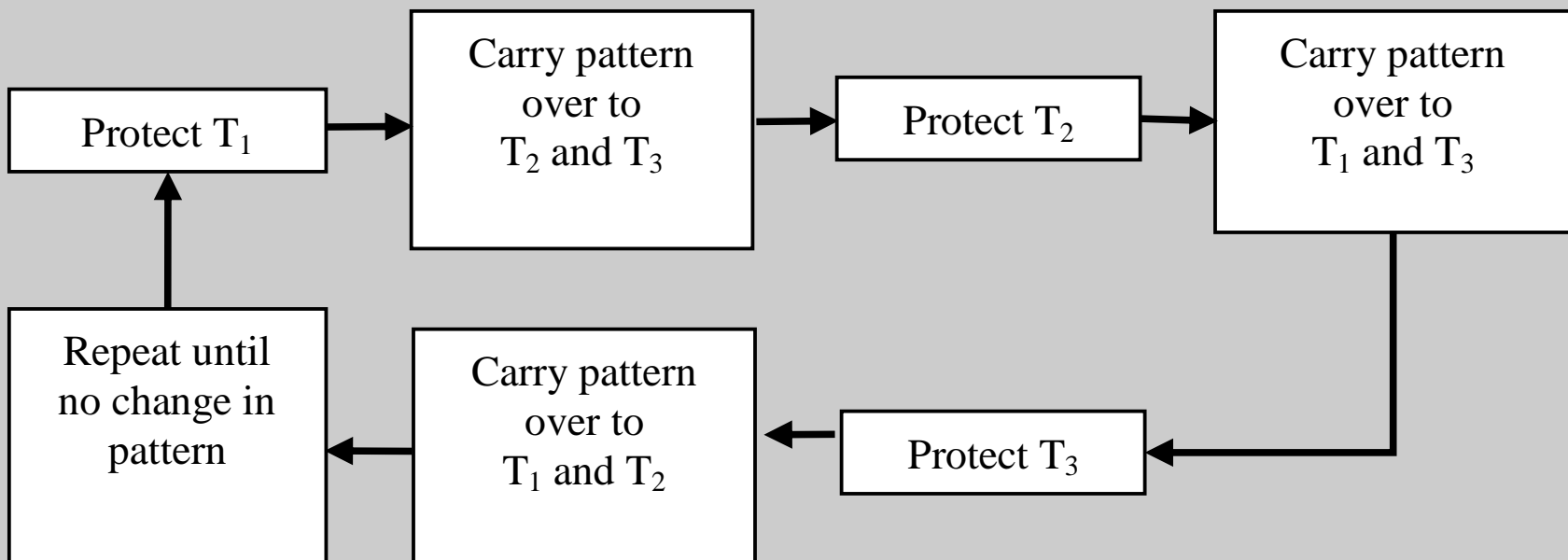
# How about linked tables?

## German experience:

- Relation structure of multiple linked tables often too complex to be handled by Argus as single linked-tables instance
- In that case
  - Handle as multiple linked-tables instances, e.g.
    - Use „traditional“ approach for linked tables

# Traditional approach for linked tables

Example with three linked tables  $T_1$ ,  $T_2$ , and  $T_3$  :



# SAS Argus-control package (Schmidt and Giessing; 2010, 2011)

**Allows „Groups“ of tables to be „Objects“ of a „traditional linked tables“ step, e.g.**

- **Process with outer and inner loops**
- **Inner loop can be replaced by single Argus-linked-tables step (where feasible)**

**Requires a lot of meta-data, e.g.**

- **Structure of (many) tables**
- **Information on loop-ordering sequence, etc.**

**Therefore**

- **Excel workbook (with several worksheets) to capture meta-data**

**„Twin“ package for „Build tables“ step, e.g.**

- **SAS SDC tabulation package**

# Steps of the SDC process

## Design SDC tables

- SDC department + Domain experts

## Prepare process meta data, for

- SDC tabulation and
- Argus control packages
  - SDC department

## Execute application

- might be fully integrated into the production process

Facilitate by GUIs ?



# GUI for the SDC Tabulation Package

## Tab "Data"

SAS-Tabellierung

Project: /sas/anwender/eckner-r/g-c1-geheim/test\_oberflaeche/test/screenshot\_1.xlsx Open New Save as Close

Data Classifications Tables

Windows configuration Drive letter: C:\

Libname Microdata: micro Folder Microdata: /sas/anwender/eckner-r/g-c1-geheim/dier ... Filename Microdata: micro\_dienstleistungen\_h

Libname Table files: target Folder Table Files: /sas/anwender/eckner-r/g-c1-geheim/dier ...

Libname .hrc-files: hrc Folder .hrc-files: /sas/anwender/eckner-r/g-c1-geheim/dier ...

Response variable: UmsatzHRT scaling factor: 10000

Frequency variable: FallHRT p-Parameter: 3

# GUI for the SDC Tabulation Package

## Tab "Classifications"

**Classification groups**

|        |   |  |
|--------|---|--|
| NACE   | Name                                    | NACE                                   |
| Region | Code for "Total" (Classification group) | H                                      |
| S_Cl_1 | Distance Option Sort File               | <input type="checkbox"/> NACE_sort ... |
| S_Cl_2 |   |  |

Add  
Delete

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**Classifications**

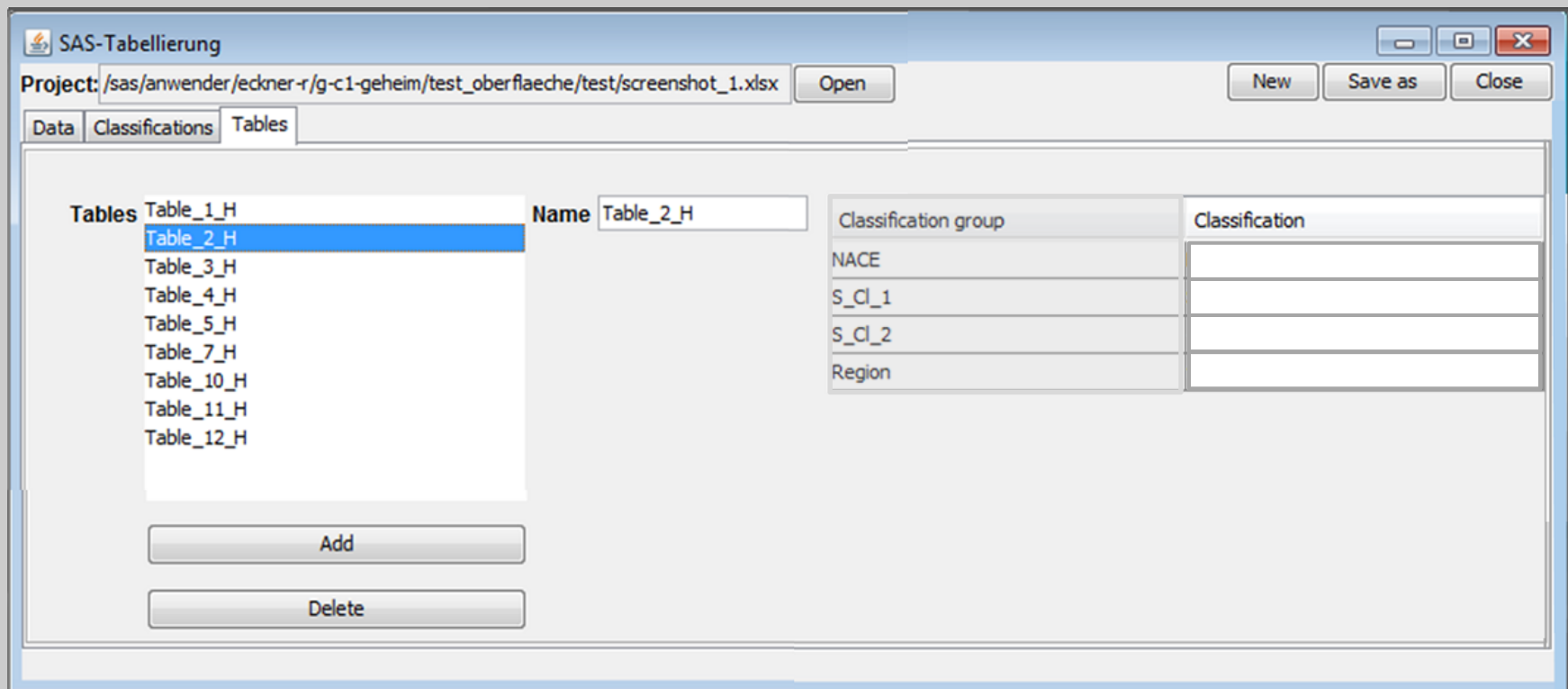
|        |  |        |  |                                     |
|--------|--|--------|--|-------------------------------------|
| NACE_2 | Name                                   | NACE_4 | name of variable (SAS micro data file) | WZ                                  |
| NACE_3 | Code for "Total" (Classification)      |        |  | H                                   |
| NACE_4 | hierarchical                           |        |  | <input checked="" type="checkbox"/> |
| NACE_5 | Hierarchy Levels                       |        |  | 1 2 3 4 5 6 7                       |
|        | Filename .hrc-file                     |        |  | ...                                 |
|        | Leading string (indentation character) |        |  |                                     |

Add  
Delete



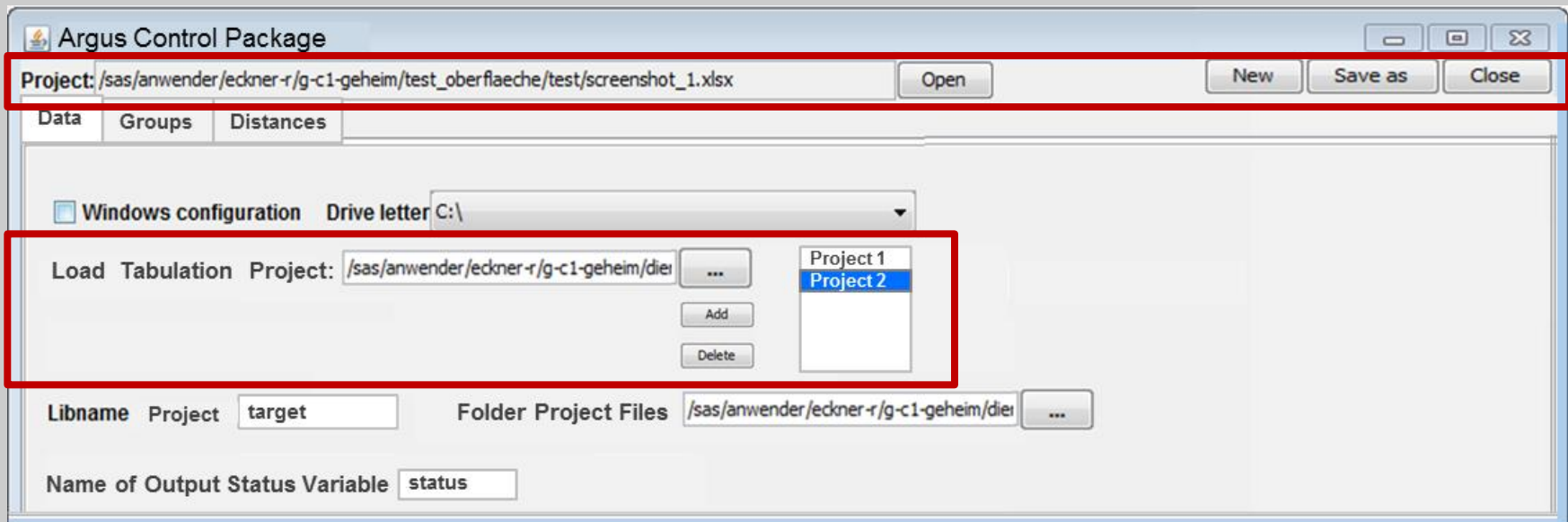
# GUI for the SDC Tabulation Package

## Tab "Tables"



# GUI for the ARGUS Control Package

## Tab “Data” of the ARGUS Control Package GUI



# GUI for the ARGUS Control Package

## Tab "Groups"

Argus Control Package

Project: /sas/anwender/eckner-r/g-c1-geheim/test\_oberflaeche/test/screenshot\_1.xlsx

Data **Groups** Distances

| Spanning Variables   |                |                   |
|----------------------|----------------|-------------------|
| Classification group | Classification | Filename.hrc-file |
| S_CI_1               | S_CI_1_sl      | ...               |
| Region               | federal state  | Region_tab_2      |
| NACE                 | NACE 3         | NACE_tab_2        |

Tables

- Table\_1\_H
- Table\_2\_H
- Table\_3\_H
- Table\_4\_H
- Table\_5\_H
- Table\_7\_H
- Table\_10\_H
- Table\_11\_H
- Table\_12\_H

Groups

- Group 1
- Group 2
- Group 3
- Group 4

Position in order sequence as

Group 3

- Table\_6\_H
- Table\_8\_H
- Table\_9\_H

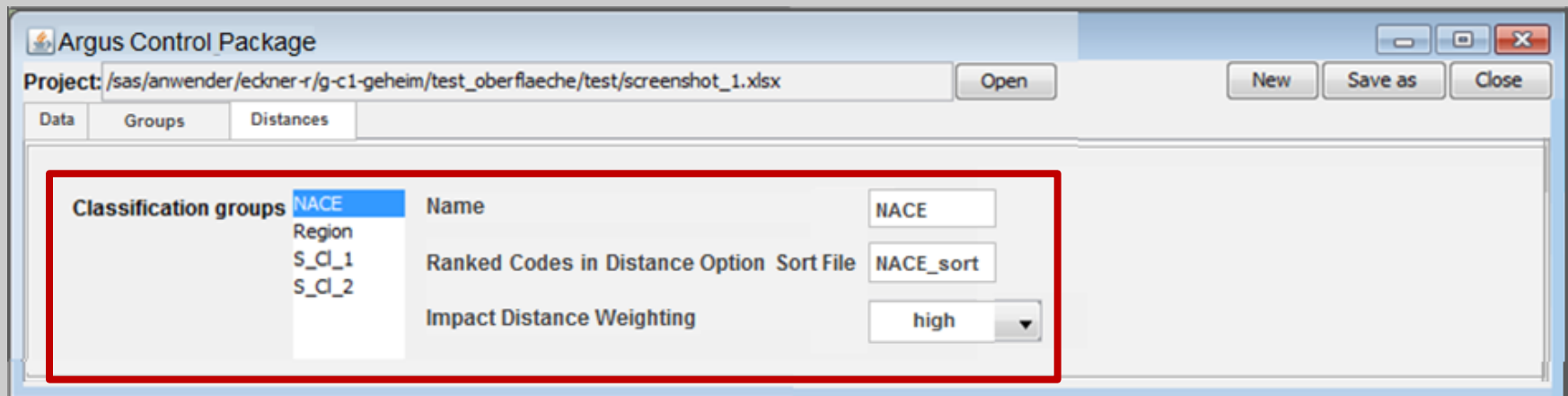
Distance

CPU 30

Adapted Modular

# GUI for the ARGUS Control Package

## Tab “Distances”



# Summary

- **SAS macro packages to handle multiple sets of linked tables in an automated way via  $\tau$ -ARGUS**
- **The packages cover tabulation, and primary risk assessment and serve as a control center to execute multiple interdependent Argus applications**
- **Ongoing: development of GUI's (may facilitate future sharing of the tools?)**
- **Our GUI enforces systematic definition of multiple classifications for the spanning variables (where needed)**
  - **Helps to make the structures of links between tables more obvious**

Thanks for your attention